



*Public Participation  
216/09 P4*

## WELLINGTON CITY COUNCIL SUBMISSION NOVEMBER 2009

### **Surf Life Saving services to the public of Wellington City**

The reason for this presentation is the dilemma facing the council regarding the Maranui Surf Club Building and Lyall Bay Beach Buildings – the future of the four Lyall Bay Beach Buildings.

I am here to represent the views of Surf Life Saving New Zealand. Our purpose is the prevention of drowning and injury in NZ – and we achieve this primarily through Club based programs.

SLSNZ is the lead authority on drowning prevention in the coastal environment in New Zealand and is the only drowning prevention member from NZ ON the International Lifesaving Federation.

My own personal background is 35 years as a member of SLS in NZ the last eight as Chief Executive.

The reason this discussion has come to a focus is the fire which has damaged the Maranui building. It represents an opportunity for all the key stakeholders to work together to create a relevant outcome for the public.

My submission to you is not about heritage buildings or cafes. Those matters are for others to comment on.

My comments are not about Lyall Bay Club or Maranui Club.

My comments are about public safety on the beaches of Wellington City.

My comments relate purely to the provision of an efficient, effective and sustainable essential service on Wellington City beaches

and

the need for the Council to consider carefully your responsibilities as land managers in providing as safe as possible environment for the public to use those beaches.

From a SLSNZ perspective while the fire has focused attention we have been grappling for many years with the issues of how we sustain our essential service to the public of NZ and in this case Wellington City.

Our Club model is a reflection of almost 100 years of history. It is problematic because it needs to change to meet the public need today and the current techniques of service provision. This is an evolution opportunity

The two Clubs on Lyall Bay beach were formed 99 years ago and much has changed since both in terms of Wellington City and the essential service we provide



The decisions made around this dialogue are for the next 99 years. It is well accepted that the growth of not for profit and volunteer organisations was haphazard and was often determined by relationships rather than need. This is certainly the case when considering how we reached the current position of having two clubs on Lyall Bay beach.

If we had a clean sheet opportunity today we would not have two SLS Clubs on Lyall Bay beach.

We have just completed an extensive assessment of the Wellington City beaches. This report is still in draft form because it has to be run past some key stakeholders but it provides a comprehensive assessment of 11 coastal locations from Oriental Bay to Owhiro and from Scorching Bay to Breaker Bay.

The executive summary provides for 5 key recommendations.

Implementation of the recommendations will require SLS and Wellington City Council partnership.

One key and relevant recommendation for Council to consider is that there are three beaches in Wellington that need to have a viable and sustainable SLS presence – Oriental Bay, Scorching Bay and Lyall Bay. To provide the service at these locations appropriate on-site facilities need to be available to the lifeguards.

We do not need multiple facilities on Lyall Bay beach. Neither of the current facilities provide for effective service provision today or going forward. Investment in multiple facilities is very poor use of public funds.

SLSNZ does not support capital investment that will build multiple SLS facilities on Lyall Bay beach.

Re-building Maranui, unless there can be substantial changes in the foot print and design, is not a solution for providing SLS services.

If the council does invest in re building Maranui you cannot suggest it is because of SLS and drowning prevention ... it might meet cultural and coffee expectations but not drowning prevention in Wellington City

It should be noted that the service provider that we recognise on Lyall Bay Beach is Lyall Bay SLSC.

If the Council commits to sustaining the past, it must be recorded as a record of fact it is not for a surf life saving outcome. The Council must make the decision and justify it based upon other objectives it wishes to achieve.

What we have today reflects a mistake. The Council has an opportunity to ensure the mistake from a surf life saving perspective is not repeated for the future of drowning prevention in Wellington City.

GEOFF BARRY  
Chief Executive - SLSNZ



**SURF LIFE SAVING**  
NEW ZEALAND

# Coastal Public Safety Report: Area Assessment

## Wellington City Council

*SLSNZ Risk Management Version 3:2008*

*WCC Assessment 1:2009*

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## EXECUTIVE SUMMARY

Between February and November 2009 Surf Life Saving New Zealand completed a Coastal Public Safety (CPS) Assessment at 11 sites identified within Wellington City. SLSNZ's *Coastal Public Safety Strategy* reflects the most in-depth analysis of coastal drowning and injury risk management ever completed in New Zealand. The strategy has an aim of using detailed evidence to work with all stakeholders to effectively manage public safety around New Zealand's coastal environment.

### Findings

- Wellington City has a range of varying beach types. The inner harbour beaches are classified as tide modified beach types and tend to be low energy reflective high tide beaches with a low tide terrace. These beaches are structured with a steep cusped high-tide beach composed of medium to coarse sand, which changes at an abrupt break in slope into a low-gradient wide (av. 120 m) low tide terrace composed of finer sand. The beaches along the South coast are wave dominated and vary in structure from reflective (steeper) to low tide terrace (lower gradient). Many of the South coast beaches have a number of major hazards (such as rocks, rips and currents, large waves) which uninformed or unprepared users could interact with.
- Usage of sites identified in this report varies; however, there is generally significant use of the city's beaches from December through to April. The urban setting of all of Wellington's beaches creates a challenge in that visitation patterns are generated by the prevailing wind direction on any given day.
- There is good quality provision of access and infrastructure to cater for people visiting beaches in Wellington. All beaches are easily accessible from the city residential areas using public transport.
- There is a significant range in the current levels of public safety at the sites assessed in this report. Ongoing risk management is critical to ensure public safety is optimized.

### Coastal Public Safety Recommendations

The following summarises the recommendations that have been suggested to enhance coastal public safety in Wellington City.

- I. Access signage (compliant with NZS 8690:2003) should be implemented across all 11 sites over the next 10 years. The short term focus of safety signage implementation should be at Breaker Bay, Lyall Bay, Oriental Bay and Houghton Bay. SLSNZ will provide the land manager (WCC) with the specific signage requirements to achieve this important outcome.
- II. From early December to late March, three patrolled beaches should be provided by Surf Life Saving to cater for beach users. These sites include Oriental Bay, Scorching Bay and Lyall Bay. These sites have been selected due to the existing usage, hazards, incident likelihood and conflicting activity levels. To provide this service, each site needs facilities appropriate for delivering a lifeguard service (observation area, gear storage, amenities). During the summer school holidays (Jan) there is a significantly higher level of coastal recreation and it is suggested a 7 day / week lifeguard service be maintained over this period.
- III. Given the highly accessible, and widely used coastline around the city, it is recommended two first response lifeguard support service units be implemented during the same times/dates as the beach patrols are delivered (one for the harbour, one for the South coast). This will ensure that resources can be mobilised to offset the risks associated with coastal usage on any given day or if there is an incident, a timely response can be achieved by water rescue services.
- IV. A 24/7/365 first response inshore water rescue capacity is developed and maintained for the harbour and South coast. This operation should be integrated with local NZSAR operations, Police and Coastguard.
- V. SLSNZ target high risk coastal users with education and awareness initiatives to ensure people using the coast make informed decisions about their chosen form of recreation and that they will have the appropriate skills to survive should an aquatic emergency occur.

## SECTION ONE: INTRODUCTION



### Surf Life Saving New Zealand (SLSNZ)

Surf Life Saving is the leading water safety organisation in New Zealand. Our organisation has been providing surf lifesaving services to New Zealand communities for nearly 100 years. Today we have 71 Clubs and 13,000 members throughout New Zealand. Providing beach patrols on 80 of New Zealand's busiest beaches each summer is just part of what we do. Being proactive in drowning and injury prevention through providing a range of consultancy, education and other services ensures that we keep New Zealand's favourite playground safe for everyone.

Drowning is the third highest cause of unintentional death in New Zealand. On average 130 people drown in New Zealand every year and 650 people are hospitalised as a result of water-related injury. A further 1,800 members of the public are rescued and another 1,600 treated for medical complaints or trauma injuries by surf lifeguards every year.

SLSNZ's coastal public safety risk management initiative represents a significant contribution to the Drowning Prevention Strategy: Towards a Water Safe New Zealand 2005-2015. This strategy was released in August 2005 and its main focus is on reducing death (as a result of drowning) and injury in, on or around water.

SLSNZ is committed to ensuring people continue to safely enjoy, and recreate in and around, New Zealand's unique coastal environments. It is a sign of the times that risk management is now a feature in all development, environment and management plans owing to the heavy duty of care responsible parties must maintain.

SLSNZ's coastal public safety risk management programme represents a critical investment in the primary prevention of drowning and injury in coastal aquatic environments. Surf Life Saving New Zealand is renowned for its surf rescue and lifeguard services, which have been effective in saving thousands of lives. Coastal risk analysis is a natural extension of these services towards prevention and service support rather than rescue.

SLSNZ takes a holistic view on delivering exceptional water safety services. Identifying and managing coastal hazards is fundamental to reducing the impact that our social and physical environments have on our safety. The task of identifying and managing these risks in the coastal environment is complicated and therefore requires the expertise that only Surf Life Saving New Zealand has developed over almost 100 years.

*In it for life*



## Coastal Public Safety in New Zealand

SLSNZ has been providing products and services in the interests of coastal public safety in New Zealand for almost 100 years. In more recent times, SLSNZ has developed best practice strategies alongside other agencies including the Accident Compensation Corporation's Drowning Prevention Strategy (DPS) and the International Lifesaving Federation's (ILSF) Global Drowning Prevention Strategy to assist with enhancing coastal public safety in New Zealand.

In the last 5 years, in and around coastal environments of New Zealand, the following public safety incidents have been recorded:

- 141 fatal drowning incidents
- 5927 people rescued by surf lifeguards
- 5511 people treated for trauma and/or medical issues
- 774 searches / emergency call out's

As highlighted in the above statistics, the drowning toll and public safety record around our coastline is unacceptable. SLSNZ has established a national lifesaving plan in a proactive, holistic approach to mitigate the risk of harm to humans in coastal environments around the entire accessible coastline of NZ.

## SLSNZ National Lifesaving Plan

SLSNZ have identified 4 factors that could lead to a drowning. In all cases of drowning, one or more of the factors outlined below will underpin casual factors leading to a drowning event.

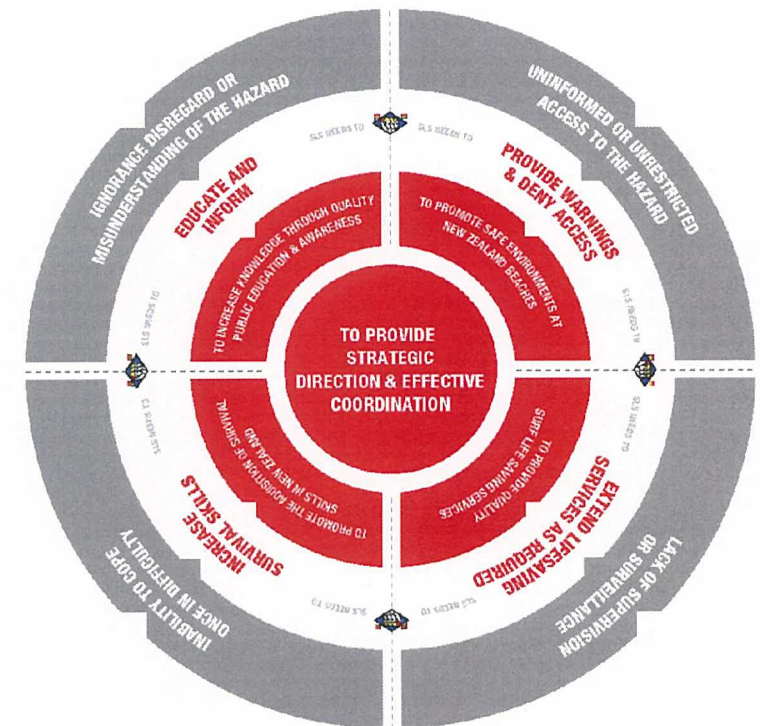
These are:

- Ignorance, disregard or misjudgment of the hazard
- Uninformed or unrestricted access to the hazard
- Lack of supervision or surveillance
- An inability to cope once in difficulty.

Therefore, to reduce drowning, we have identified strategies to address all four factors (above) which include:

1. Education and information
2. Denial of access and or provision of warnings
3. Provision of supervision, and
4. Acquisition of survival skills

Within each strategy there are a range of control measures that are available to achieve a specific identified outcome. In order to select an appropriate control measure for any given environment, a coastal public safety risk assessment should be conducted to analyze the hazards and risk of a specific area or environment.



## Managing Risk in the Coastal Environment

Managing risk in the coastal environment requires the systematic application of management policies, procedures and practices to the tasks of identifying, analysing, treating and monitoring risk.

The basic rationale for conducting a risk assessment is:

1. Providing the basis for a risk management plan
2. Improving safety and reduce the risk of death or injury at the site
3. Ensuring the best use of resources and encourage effective management and cost effective operations
4. Reducing the potential for litigation stemming from accident and management practices
5. Providing guidance for the development of policy, procedure and practices.

There is no such thing as a risk free coastal environment. The purpose of hazard and risk assessment is to assess the probability that certain events will take place and assess the potential adverse impact these events may have on people, property or the environment or other adverse outcomes.

The job of accurately analysing the potential personal risk to members of the public at a coastal location is a difficult one. The determination and evaluation of potential risks is made more complicated in coastal regions due to the continually changing nature of the environment. Coastal regions are dynamic environments where the presence and level of a potential danger varies with numerous factors such as time, weather and human interaction.

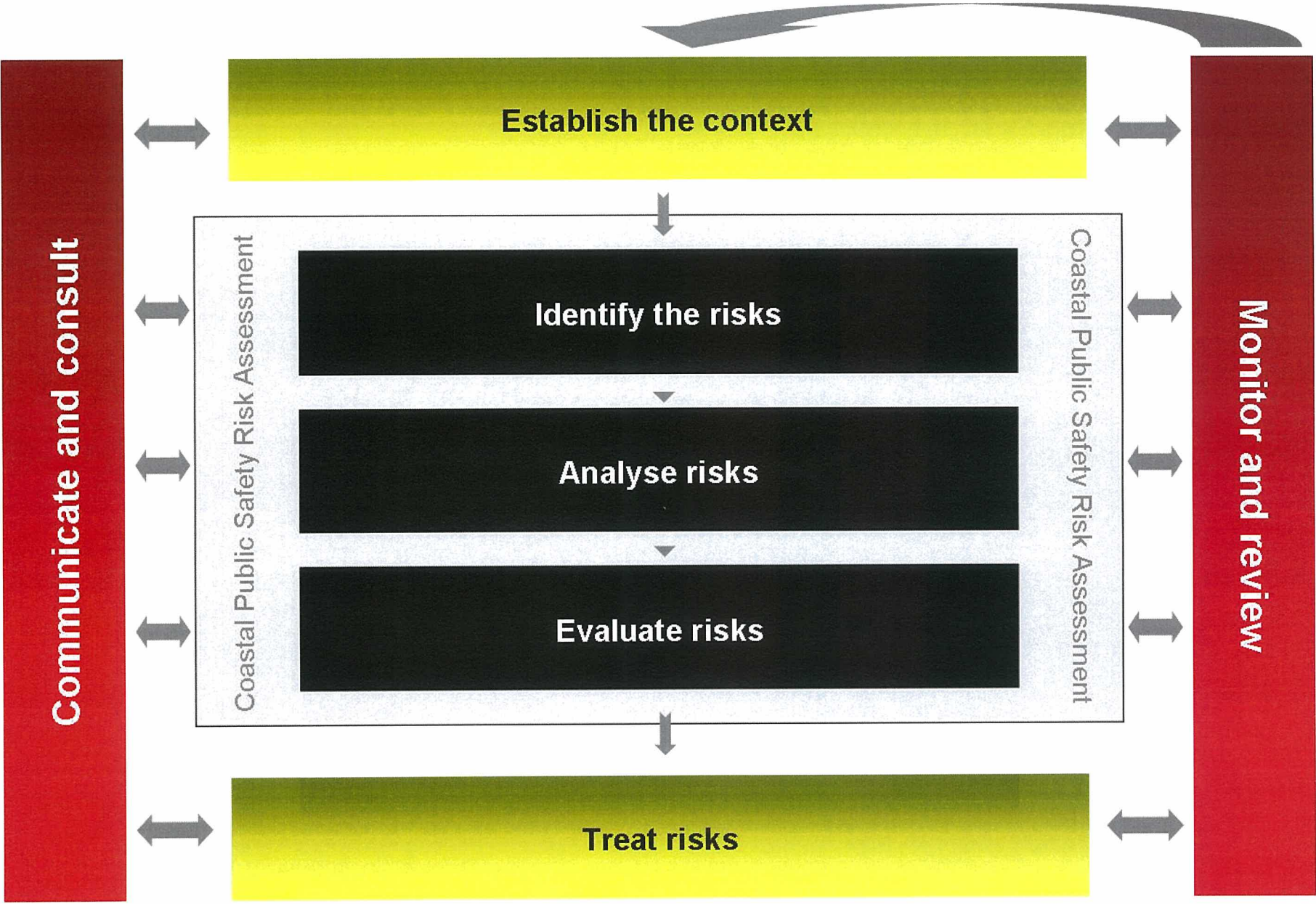
In order to effectively assess hazards and their associated risks, the assessor must understand all the contributing factors that go together to create the danger (for example, the beach topography and the prevailing weather and wave energy profiles of the site).

Consideration is required to treat and manage the risks present to ensure visitors can enjoy the safest aquatic recreation or visitation as is possible.

Solutions will include:

1. Removal of hazards where possible
2. Community education programmes to raise awareness of potential hazards and target at risk demographics within the community
3. Signage to allow visitors to make informed decisions on whether they wish to proceed into an area or with an activity
4. Supervision through the deployment of appropriately trained personnel
5. Appropriate emergency management systems put in place.





## Coastal Public Safety Assessment - Process

### Purpose

- To identify and investigate hazards or other factors that have an influence on the health, safety and well being of human's that may recreate or visit the coastal area.
- Make recommendations to relevant agencies, consistent with a national model, standards, guidelines and best practice, on the best approach to enhancing public safety in the coastal area being assessed.

### Method

SLSNZ has developed an industry leading programme to identify hazards, analyse risk and promote appropriate control measures in coastal environments. SLSNZ's process is aligned to generic, well accepted risk management practices highlighted in AS/NZ Standard 4360:2004.

### Step One – Establish the Context

Establish the context for the area being assessed including geographic scope, identification of key stakeholder's within that scope, establish a project plan for the area to be assessed.

Reference made to relevant material including the following standards and guidelines:

- Risk Management AS/NZS 4360:2004
- Water Safety Signage NZS 8690:2003
- RNLI Public Rescue Equipment Guidelines 1:2006
- NZ Government Drowning Prevention Strategy
- SLSNZ Coastal Public Safety: Risk Audit Tool
- Resource Management Act 1991

### Step Two – Identify and Analyse Risks

Statistical risk assessment – 5 year data analysis of the regional area (Drowning, Injury, Rescue, Search). Data cross-checked against national trends to identify local variations (specific trends in the region).

### Step Three - Identify and Analyse Risks

Desktop preparation – information on the area collected and summarised (tourist/regional attractions, auditable sites, census information, migration trends, etc).

## Step Four - Identify and Analyse Risks

Site Audits – each site visited and assessed using SLSNZ’s Coastal Public Safety: Site Audit Tool. Each site assessed for hazards and risk as a result of environment, visitation, activities/recreation, access, facilities , previous incident history and volunteer service sustainability. This process includes extensive consultation with local and regional stakeholders where applicable including (but not limited to):

- NZ Police
- NZ Ambulance Service
- Rescue Helicopter Trust
- NZ Fire Service
- Local medical facilities
- Local Iwi
- Local users of the site / area
- Information Site’s
- Local Surf Life Saving services
- Territorial authority (land manager)
- Members of the public
- NZ Coastal Society
- Local Dune Care / Beach Care groups
- Water and Atmosphere forecast agencies (NIWA, MetOcean)
- Relevant Government Agencies (i.e. Department of Conservation)

## Step Five – Evaluate the Risks

Evaluate Risk - Report developed including a summary of the area and each site assessed. Each site’s key risk factors evaluated in a table (site score card) which can then be compared with other sites and a score criteria to assist identification of high priority sites. Assessment results compared against best practise guidelines and standards to inform decision making about the most appropriate measures to implement.

## Step Six – Treat the Risks

Report presented to the appropriate land manager and other identified stakeholders with key findings and recommendations highlighted to assist with evidence based decision making. The identified stakeholders develop and agree on a 1/3/5/10 year work plan to enhance coastal public safety in the region.

## Step Seven – Monitor and Review

Progress is monitored and reviewed at set intervals including a yearly face to face meeting with the regional surf life saving authority to evaluate progress.



## Context and Scope of this Coastal Public Safety Risk Assessment

<b>Territorial Land Authority jurisdiction (high tide up):</b>	Wellington City Council
<b>Territorial Authority jurisdiction (high tide down):</b>	Greater Wellington Regional Council
<b>Surf Life Saving District:</b>	Surf Life Saving New Zealand – Central Region
<b>Coastal area assessed within this report:</b>	Urban Wellington / Wellington City
<b>Total Number of sites assessed:</b>	Eleven (11)
<b>Previous site audits completed in this area:</b>	SLSNZ Coastline Survey 1997 (Beach Classification and Facility Audit)

Location Reference	SLSNZ Unique Site ID	Name of Coastal Location	Date of Site Visit	Geographic Reference of Site	
				Latitude	Longitude
1	721	Oriental Bay	10/02/2009, 9/11/2009	41°17.457'S	174°47.616'E
2	722	Balaena Bay	12 & 13/02/2009	41°17.504'S	174°48.195'E
3	723	Hataitai Beach	13/02/2009, 9/11, 2009	41°18.348'S	174°47.967'E
4	724	Scorching Bay	13/02/2009, 9/11, 2009	41°17.824'S	174°50.001'E
5	725	Worser Bay	10/02/2009, 9/11/2009	41°18.785'S	174°49.752'E
6	725	Seatoun Beach	10/02/2009, 9/11/2009	41°19.194'S	174°49.865'E
7	726	Breaker Bay	11/02/2009, 9/11/2009	41°19.806'S	174°50.046'E
8	727	Lyall Bay	11/02/2009, 9/11/2009	41°19.798'S	174°47.677'E
9	729	Houghton Bay	11/02/2009, 9/11/2009	41°20.604'S	174°47.089'E
10	730	Island Bay	9/11/2009	41°20.612'S	174°46.406'E
11	731	Owhiro Bay	9/11/2009	41°20.686'S	174°45.822'E






Coastal Environments Assessed








## Coastal Environments Assessed

<p><b>LOCATION 1</b> Oriental Parade Beach</p>	<p>Oriental Parade is located only a kilometre from central city Wellington. The beach is small, only 30 metres of sandy beach at its widest point. The beach is golden sand and is backed by the Freyberg Pool complex, the Tug Boat Restaurant and a large car park. Oriental Parade Beach is popular during summer. It is very close to town and very accessible to many people. The beach is small and can not cope with the large crowds that saturate the space during peak times. This creates a range of activity conflict between users. Oriental Parade Beach has shady areas, barbecue tables and a playground. The beach is surrounded by residential apartments and hotels/motels which provide many of the beaches patrons.</p>	
<p><b>LOCATION 2</b> Balaena Bay</p>	<p>Balaena Bay is located 3 kilometres from central city Wellington. The bay is small only 150 metres in length and it is backed by Oriental Parade Road and then residential housing. At the northern end land has been reclaimed and a car park was built where 40 cars can park. The majority of Balaena Bay is fine gravel while the southern end is larger rocks. Balaena Bay has a toilet and changing room facilities that is built out into the water on stilts. The walking track behind the beach is popular.</p>	
<p><b>LOCATION 3</b> Hataitai Beach</p>	<p>Hataitai Beach is located 5 kilometres from central city Wellington. The beach is very small being only 40 metres in length. The beach is inside the Wellington Harbour and is completely sheltered from any swell. The beach is right next to a large marina where boats can be launched. There is also a canoe/kayaking club immediately to the North and the aquatic area is heavily used by club members. Hataitai Beach has toilets and changing sheds that extend out into the water on pillions. Oriental Parade Road runs along directly behind the beach and there is a small amount of parking at the beach.</p>	






## Coastal Environments Assessed (Continued)

<p><b>LOCATION 4</b> Scorching Bay</p>	<p>Scorching Bay is located 10 kilometres from central city Wellington. The beach is 200 metres in length and is backed by a grassy reserve popular among families and youths for picnicking during summer. The beach is golden sand and has a protective rock wall behind it. There is a significant amount of car parking available across the road and public buses operate from the site. The southern end is backed by a small number of residential houses and a popular cafe. It is part of the Wellington Harbour, is sheltered from ocean driven swell and the headland at the Northern end of the beach creates a sheltered environment during the prevailing Northerly winds.</p>	
<p><b>LOCATION 5</b> Worser Bay</p>	<p>Worser Bay is 8 kilometres from central city Wellington. The bay is 300 metres in length and extends from Worser Bay Life Saving Club at the northern end to a rocky outcrop at the southern end of the bay, near Seatoun. The entire bay is backed by residential houses and there is a large steep hill in behind the beach with houses scattered along and on it. Worser Bay Life Saving Club is located at the beach. There is a bus stop at the main entrance to the beach and a large grassed area at the Northern end of the beach which is extensively used for picnicking. There is a local Sea Scout group that use the aquatic area and at time the water can be busy with activity by the different user groups.</p>	
<p><b>LOCATION 6</b> Seatoun Beach</p>	<p>Seatoun Beach is 8 kilometres from the city. The beach runs East to West and is very exposed during Northerly winds. There is a wharf at the Western end of the beach which is used by water taxis to transport people into the city. Churchill Park lies behind the Eastern end of the beach and has playgrounds and a large grassed area for recreation. There is limited street parking available along the foreshore and the beach itself has limited facilities.</p>	



## Coastal Environments Assessed (Continued)

<p><b>LOCATION 7</b> Breaker Bay</p>	<p>Breaker Bay is located 10 kilometres from central city Wellington and forms the eastern bank to the Wellington Harbour. The beach is 800 metres in length, steep, and made up of a shingle and fine gravel. There is a large rock outcrop at the eastern end, rocks and reefs scattered along the foreshore and a large rocky headland at the western end of the bay. Main access to beach is via the car park at the western end of the bay. The bay and beach are backed by large hills. Breaker Bay is emerging as a popular surfing destination and is also used by local naturalists as a private area to sunbathe.</p>	
<p><b>LOCATION 8</b> Lyllall Bay</p>	<p>Lyllall Bay is located 5 kilometres south of central city Wellington. The bay is 1.6 kilometres in length with grey sand and the entire beach is backed by a seawall. Both Maranui and Lyllall Bay Surf Life Saving Club are located at this beach. There is a large boulder seawall along the eastern headland and this is the location for the Wellington International Airport. The bay is backed by residential housing and this extends around the western headland towards Houghton Bay. The beach has a large permanent residence and gets many beach users from the Wellington Region. The beach is popular year round for beach based recreation, although the water remains relatively cold for those that participate in water based recreation.</p>	
<p><b>LOCATION 9</b> Houghton Bay</p>	<p>Houghton Bay is located 8 kilometres from downtown Wellington on the South coast. Houghton Bay is very small, 120 metres in length. The car parking area behind the beach is elevated and provides a good view of the beach. The bay is sandy while there are rocks to both the east and west of the sandy area. Behind the beach is a residential area that provides many of the beaches regular patrons. When there is Southerly swell running, the surf breaks heavily at Houghton Bay and is quite spectacular. The beach is increasingly used for surfing however it is only recommended that this is undertaken by highly skilled and physically fit surfers due to the hazardous nature of the beach.</p>	



## Coastal Environments Assessed (Continued)

### LOCATION 10

#### Island Bay

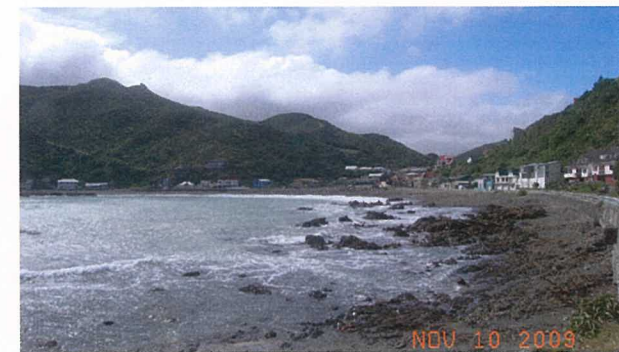
Island Bay is located 8 kilometres from central city Wellington. The bay is aptly named as its stand out feature is the island that lies directly in front of the beach. A cement wall runs along the back of the bay with a number of formal access points enabling people to get onto the beach. Island Bay is a sandy beach and limited swell reaches the beach due to the island and extending reefs that shelter it from swell. There are rocky outcrops around the bay and larger ones at its extremities. There is a small cement jetty that extends around 30 metres into the ocean at the western end.



### LOCATION 11

#### Owhiro Bay

Owhiro Bay is located 10 kilometres from central Wellington. The main beach area is shingle and 200 metres in length. Each end of the bay is made up of rocky headlands with small reefs scattered off them. A small stream runs out across the Western end of the bay. The bay is backed by Bay Parade Road and behind this lies residential housing. There is a small car park at the beach and a boat ramp is available for public use at the Eastern end of the bay. Fishing from the rocky areas on either side of the bay is popular among locals.



## Area Information and Description

### Coastal Culture

- I. A significant proportion of Wellington residents recreate around the city's coastline. In many ways, given the geography of Wellington, it is difficult not to come into contact with the coast in some way (using water based transport, food gathering, sport and fitness, recreation etc). Almost all residents of Wellington live within 3km of the coast (Source: WCC website).
- II. There is a strong surfing culture among aquatic users of the South coast with the major surfing hot spots being Breaker Bay, Lyall Bay (Eastern corner), Houghton Bay, Island Bay (off the island).

### Population and Climate

- I. ~190,000 people reside in Wellington City and ~460,000 reside in the Greater Wellington Region
- II. There is a high percentage of European residents (70.1%) with Asian (13.2%), Maori (7.7%) and Pacific Island (5.2%) being the majority of the ethnical make up of the city.
- III. The population of Wellington increased by 9.5% at the most recent census and this trend is expected to continue (i.e. steadily increasing population).
- IV. Wellington sees on average 2025 hours of sunshine each year with the average mid summer daily high being 20°C. February is the warmest month with a 17°C average high.
- V. The window of general coastal recreation in Wellington appears to be narrower than other parts of New Zealand during the summer months (Dec-March as compared to Nov – April in other areas).

(Source: Statistics New Zealand).

### Coastal Activities

- I. Along the South coast, there are a number of surf spots (highlighted above) well used by local and visiting surfers to the region. Some of these locations are highly hazardous and should only be surfed by experienced and skills surfers.
- II. Inside the harbour, there is a diverse range of coastal activity that revolves around sport (open water swimming, triathlon, surf life saving, beach volleyball, wind surfing) and people looking for non-surf coastal recreation (i.e. families with young children, elderly etc).
- III. There are a range of organised sports clubs operating which use the coastal environment around Wellington City for recreation (including Surf Life Saving, Yachting/Sailing, Sea Scouts, Kayaking, Waka Ama, Triathlon and Boardriders).
- IV. Food gathering is popular along the South coast with SCUBA diving, Paua hunting, rock fishing, spear fishing and boat fishing all widely undertaken. The marine reserve at Island Bay makes it illegal for food gathering to occur in the defined marine reserve zone.
- V. A number of concerns have been raised around the impact of Kite Surfing on public safety due to the velocity users achieve in close proximity to other aquatic users.

### Coastal Tourism

- I. Wellington is not considered a coastal tourism destination in New Zealand although there are specific attractions that draw people to the coast (i.e. HMNZS Wellington dive attraction, coastal events such as kit surfing, boating, surf life saving, outrigger paddling). Evidence suggests the majority of beach usage is by people that reside in Wellington.
- II. There are a number of accommodation providers in close proximity of accessible coastline and this increases the likelihood of a visitor to the city interacting with the coastline
- III. Wellington does attract significant tourism with 558,000 international tourists visiting the city in 2008 (Source: International Visitor Survey, Ministry of Tourism).



## Coastal Public Safety Assessment Summary

### **SLSNZ Statement on coastal public safety:**

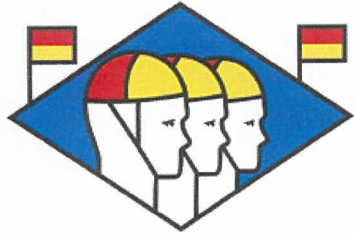
Wellington City represents one of New Zealand's most urbanised areas of accessible coastline. Although not a renowned 'summer hotspot' for beach based recreation, thousands of residents and visitors engage in diverse forms of coastal recreation. Wellington's geography creates a situation where a majority of the 190,000 residents live within 3km of the coast and this corresponds to a usage spread across a large proportion of the coastline. There are three 'main' beaches where the majority of beach users go for beach based recreation and bathing (Oriental Bay, Scorching Bay, Lyall Bay). There are a significant number of hazards that remain a threat to humans when recreating around Wellington's coast. Some of the harbour's low energy beaches (Oriental Bay, Balaena Bay, Scorching Bay) tend to have sudden changes in water depth in localised areas (either very shallow to very deep, or very deep to very shallow) which can be dangerous for people diving in without checking the depth. In the absence of wave energy, the wind represents the most significant hazard to beach users in the Harbour. The entire coastline (both Harbour and South Coast) has submerged rocks scattered around the perimeter. As the tide rises and falls, submerged rocks can become a significant hazard. There is a significant amount of facility and infrastructure development in place which draws/attracts people to various sites. In many cases, these facilities (car parks, toilets, playgrounds etc) are also positioned in close proximity to hazardous areas of coast. It is critical that public safety considerations are front of mind when planning any development near an aquatic space. With very limited measures in place, almost all focused on reactive response (i.e. rescue) rather than proactive response, there is a low to moderate level of coastal public safety in Wellington City which needs attention by all stakeholders.

### **Critical Action Recommendations (if applicable):**

- a. Breaker Bay and Houghton Bay have been identified as high (Breaker Bay) and medium (Houghton Bay) priority sites due to the significant hazards, increasing usage, easy access, inter-activity conflict and increasing incidents occurring (i.e. black spot) at the sites. It is recommended that NZS8690:2003 compliant signage be erected at all access points to the site. SLSNZ is able to provide these specific recommendations to WCC for implementation.
- b. Surf Life Saving services must have a key to access the gated vehicle track at the West end of Breaker Bay in the event of an emergency response to the site be required.

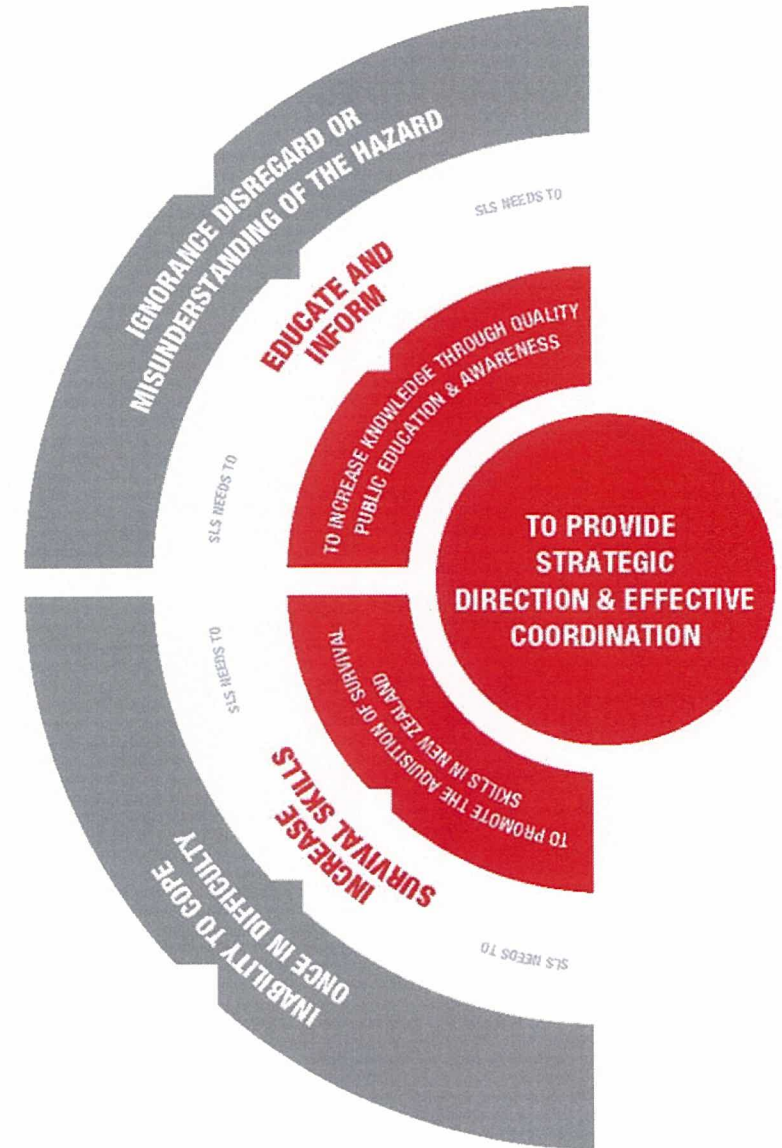
### **Top 5 recommendations to enhance public safety in the coastal environment assessed:**

1. Over time NZS 8690:2003 compliant water safety signage be implemented at coastal recreation sites across the city. Implementation should begin with the highest priority sites identified in this Coastal Public Safety Assessment. SLSNZ will work with the WCC to ensure signage provides the most effective messaging is communicated on the signs to ensure all users receive adequate information to make informed decisions.
2. During the summer months, a lifesaving service be delivered at three key locations (Oriental Bay, Scorching Bay and Lyall Bay) to cater for residents seeking a patrolled beach. This service should be provided on weekends from start December to end March and Monday to Friday during January/early February until the school term re-starts. During patrol times at the three primary beaches, two roving support services should be on patrol (one in Harbour, one on South Coast) to provide fast rescue capacity to these broad areas during times of heightened risk.
3. A significant limitation of aquatic response in Wellington is related to the lack of a communications network to allow lifeguards to communicate with central command and control as well as other emergency services that are used in a range of SAR responses (Police, Ambulance, Rescue Helicopter, and Coastguard). Intra service and Inter service communication capability is critical in providing a first class service to the public.
4. In recognition of the number of incidents that are occurring outside of prescribed patrol times, aquatic agencies need to work in collaboration to provide a 24/7/365 emergency response service that provides a prompt response to the entire Wellington coastal/marine environment.
5. There is a need to provide appropriate infrastructure to ensure an effective lifeguard service at Oriental Bay is provided (i.e. observation/scanning area, equipment storage).



**SURF LIFE SAVING**  
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## SECTION TWO: Education and Awareness - Identifying at risk users





## Data Analysis – Wellington Region

## NZ Average Comparison

**Coastal Drowning Rate (Per 100,000):** 0.54 / 100,000 (Total Population 448,941 )

**Coastal Rescue Rate (per 100,000):** 10.58 / 100,000

<b>District Gender Comparison (Drowning)</b>		#	%
(5 yr av)	Male	9	75.00%
	Female	3	25.00%

<b>District Gender Comparison (Rescue)</b>		#	%
(5 yr av)	Male	127	53.81%
	Female	84	35.59%
	Unknown / Not Recorded	25	10.59%

<b>District Gender Comparison (Injury)</b>		#	%
(5 yr av)	Male	102	50.74%
	Female	85	42.28%
	Unknown / Not Recorded	14	6.96%

<b>District Gender Comparison (Search)</b>		#	%
(5 yr av)	Male	14	73.68%
	Female	4	21.05%
	Unknown / Not Recorded	1	5.26%

<b>District Ethnicity Comparison (Drowning):</b>		#	%
(5 yr av)	Asian	0	0.00%
	European	10	83.33%
	Maori	1	8.33%
	Pacific Islands	1	8.33%
	Other / Not Recorded	0	0.00%

<b>District Ethnicity Comparison (Rescue):</b>		#	%
(5 yr av)	Asian	2	0.85%
	European	173	73.30%
	Maori	24	10.17%
	Pacific Islands	5	2.11%
	Other / Not Recorded	31	13.14%

**NZ Average Coastal Drowning** 0.700 / 100,000 (Total population 4,027,947)

**NZ Average Coastal Rescue** 29.42 / 100,000

<b>NZ Gender Comparison (Drowning)</b>		#	%
(5 yr av)	Male	111	78.70%
	Female	30	21.30%

<b>NZ Gender Comparison (Rescue)</b>		#	%
(5 yr av)	Male	3063	51.68%
	Female	1786	30.13%
	Unknown / Not Recorded	1078	18.19%

<b>NZ Gender Comparison (Injury)</b>		#	%
(5 yr av)	Male	2675	48.54%
	Female	2026	36.76%
	Unknown / Not Recorded	810	14.70%

<b>NZ Gender Comparison (Search)</b>		#	%
(5 yr av)	Male	394	50.90%
	Female	173	22.35%
	Unknown / Not Recorded	207	26.74%

<b>NZ Ethnicity Comparison (Drowning):</b>		#	%
(5 yr av)	Asian	23	16.31%
	European	82	58.16%
	Maori	19	13.47%
	Pacific Islands	11	7.80%
	Other / Not Recorded	6	4.25%

<b>NZ Ethnicity Comparison (Rescue):</b>		#	%
(5 yr av)	Asian	267	4.50%
	European	3649	44.70%
	Maori	825	13.92%
	Pacific Islands	226	3.81%
	Other / Not Recorded	959	16.18%

**District Ethnicity Comparison (Injury)**

(5 yr av)	Asian	2	0.99%
	European	138	68.65%
	Maori	31	15.42%
	Pacific Islands	5	2.48%
	Other / Not Recorded	25	12.43%

**District Ethnicity Comparison (Search)**

(5 yr av)	Asian	0	0.00%
	European	13	68.42%
	Maori	1	5.26%
	Pacific Islands	1	5.26%
	Other / Not Recorded	4	21.05%

**District Age Comparison (Drowning):**

(5 yr av)	0-5 Years	1	8.00%
	6-10 Years	0	0.00%
	11-15 Years	0	0.00%
	16-20 Years	0	0.00%
	21-30 Years	4	33.33%
	31-40 Years	1	8.00%
	41-60 Years	5	41.66%
	61+ Years	1	8.00%

**District Age Comparison (Rescue):**

(5 yr av)	0-5 Years	4	1.70%
	6-10 Years	79	33.61%
	11-15 Years	76	32.34%
	16-20 Years	26	11.06%
	21-30 Years	14	5.96%
	31-40 Years	21	8.94%
	41-60 Years	10	4.25%
	61+ Years	2	0.85%
	Unknown / Not Recorded	3	1.27%

**NZ Ethnicity Comparison (Injury)**

(5 yr av)	Asian	123	2.23%
	European	4133	74.99%
	Maori	493	8.94%
	Pacific Islands	114	2.07%
	Other / Not Recorded	648	11.75%

**NZ Ethnicity Comparison (Search)**

(5 yr av)	Asian	36	4.65%
	European	384	49.61%
	Maori	83	10.72%
	Pacific Islands	22	2.84%
	Other / Not Recorded	249	32.17%

**NZ Age Comparison (Drowning):**

(5 yr av)	0-5 Years	2	1.42%
	6-10 Years	1	0.70%
	11-15 Years	4	2.84%
	16-20 Years	10	7.09%
	21-30 Years	29	20.57%
	31-40 Years	25	17.73%
	41-60 Years	35	24.82%
	61+ Years	35	24.82%

**NZ Age Comparison (Rescue):**

(5 yr av)	0-5 Years	122	2.06%
	6-10 Years	1109	18.74%
	11-15 Years	1431	24.18%
	16-20 Years	1108	18.72%
	21-30 Years	990	16.73%
	31-40 Years	467	7.89%
	41-60 Years	342	5.78%
	61+ Years	56	0.95%
	Unknown / Not Recorded	294	4.97%



**District Age Comparison (Injury)**  
(5 yr av)

0-5 Years	9	4.47%
6-10 Years	50	24.87%
11-15 Years	42	20.89%
16-20 Years	45	22.38%
21-30 Years	17	8.45%
31-40 Years	8	3.98%
41-60 Years	9	4.47%
61+ Years	4	1.99%
Unknown / Not Recorded	17	8.45%

**District Age Comparison (Search)**  
(5 yr av)

0-5 Years	2	10.52%
6-10 Years	5	26.31%
11-15 Years	2	10.52%
16-20 Years	1	5.26%
21-30 Years	3	15.78%
31-40 Years	1	5.26%
41-60 Years	3	15.78%
61+ Years	0	0.00%
Unknown / Not Recorded	2	10.52%

**NZ Age Comparison (Injury)**  
(5 yr av)

0-5 Years	280	5.08%
6-10 Years	1190	21.59%
11-15 Years	1484	26.92%
16-20 Years	991	17.98%
21-30 Years	696	12.63%
31-40 Years	327	5.93%
41-60 Years	339	6.15%
61+ Years	78	1.41%
Unknown / Not Recorded	126	2.28%

**NZ Age Comparison (Search)**  
(5 yr av)

0-5 Years	92	11.88%
6-10 Years	150	19.38%
11-15 Years	107	13.82%
16-20 Years	61	7.88%
21-30 Years	82	10.59%
31-40 Years	62	8.01%
41-60 Years	41	5.29%
61+ Years	6	0.77%
Unknown / Not Recorded	173	22.35%

**Education and Awareness**

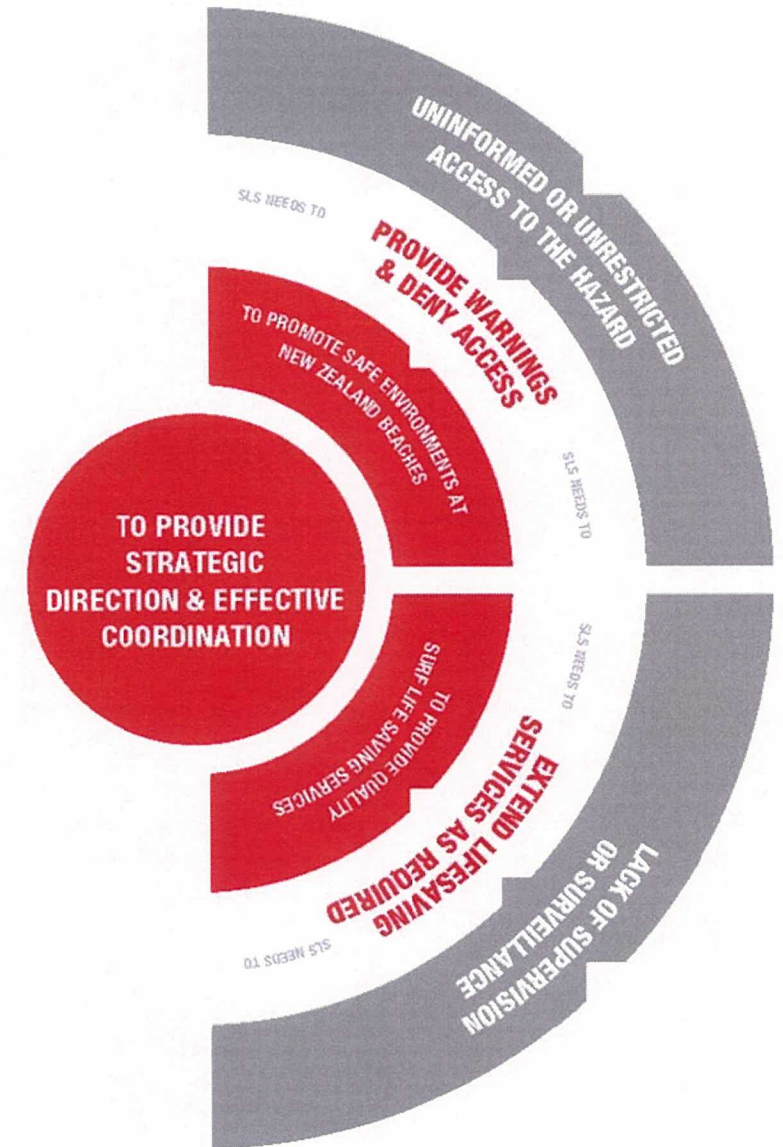
#	Priority Target Group	SLSNZ Education Initiative
1	Children 6-12 years old	<ul style="list-style-type: none"> <li>• Beach Education Programme: Lyall Bay, Titahi Bay, Paekakariki (venues)</li> <li>• Surf to Schools Programme: Rongotai, Strathmore, Porirua, Upper Hutt (focus)</li> </ul>
2	Educational campaigns and programmes for the under 20 age group	<ul style="list-style-type: none"> <li>• Surf to Schools extension (year 9-10)</li> <li>• Focus on greater self responsibility, good decision making and water skills to reducing the dependence on SLSNZ rescues</li> <li>• Educational resources with an environmental focus (weather, waves rips)</li> </ul>
3	Target education programmes/campaigns for the male population	<ul style="list-style-type: none"> <li>• Awareness campaign that targets males and the risk they pose to drowning</li> <li>• Include differentiation within programme and resource development</li> </ul>
4	Educational campaigns and programmes targeted for the 21-30 age group	<ul style="list-style-type: none"> <li>• Campaign and resources to focus on safe practices at the beach ( greater self responsibility, good decision making</li> </ul>
5	Educational campaigns and programmes targeted for the 41-60 age group	<ul style="list-style-type: none"> <li>• Campaign and resources to focus on greater self responsibility, good decision making (risk management and awareness of own ability)</li> <li>• Environmental conditions and activities focus (fishing, boating and wave size, wind etc.)</li> </ul>



**SURF LIFE SAVING**  
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# SECTION THREE: COASTAL RISK ASSESSMENT

## Analysis Summary





# Environmental Hazard Rating

The University of Sydney Coastal Studies Unit developed ABSAMP (Australian Beach Safety and Management Program) in conjunction with Surf Life Saving Australia. The program has identified coastal hazards that affect bathers and rates the safety of the beach on a scale of one to ten, where one (1) is the least hazardous and ten (10) is the most hazardous (see appendix A for ABSAMP beach type characteristic overview). Surf Life Saving New Zealand, in conjunction with NIWA and Dr Andy Short, re-calibrated the ABSAMP model to reflect appropriate classification of NZ beaches. Beach classification, prevailing conditions and currents and other additional environmental hazards are assessed to generate a modal environmental hazard rating for each site as listed below.

Site Ref	Site Name	Wave / Tide Beach	Prevailing Beach Type	Wave Types	Prevailing Wave Height	Initial Hazard Rating	Local Hazards	Local Adjustment (if applicable)	Hazard Rating
1	Oriental Parade Beach	Tide Dominated	Reflective - LTT	Wind Swell Only	0	1	A, B, C, H, M	2	3
2	Balaena Bay	Tide Dominated	Reflective - LTT	Wind Swell Only	0	1	A,B,C,F	1	2
3	Hataitai	Tide Dominated	Reflective - LTT	Wind Swell Only	0	1	A,B,C,F, M	2	3
4	Scorching Bay	Tide Dominated	Reflective - LTT	Wind Swell Only	0.1	1	A,B,C,F	1	2
5	Worser Bay	Tide Dominated	Reflective - LTT	Wind Swell Only	0.2	1	A,B,C,F	1	2
6	Seatoun Beach	Tide Dominated	Reflective - LTT	Wind Swell Only	0.2	1	A,B,C,F,M	2	3
7	Breaker Bay	Wave Dominated	Reflective	Dumping Waves	1.0	4	A,B,C,E,K	2	6
8	Lyll Bay	Wave Dominated	INT - LTT	Spilling Waves	0.7	3	A,D,E,M	1	4
9	Houghton Bay	Wave Dominated	Reflective	Dumping Waves	1.0	4	A,B,C,D,K,M	2	6
10	Island Bay	Wave Dominated	Reflective	Surging Waves	0.2	2	A,B,C,D, K	1	3
11	Owhiro Bay	Wave Dominated	Reflective	Surging Waves	0.3	3	A,B,C,D,K	1	4
<b>Guide to Hazard Ratings</b>					<b>Criteria</b>				
<b>1 - 3</b>		<u>Least Hazardous</u> : Low danger posed by water depth and/or weak currents; however, supervision still required, in particular for children and poor swimmers							
<b>4 - 6</b>		<u>Moderately Hazardous</u> : The level of hazard depends on wave and weather conditions, with the possibility of strong rips and currents posing a moderate risk							
<b>7 - 8</b>		<u>Highly Hazardous</u> : Experience in strong surf, rips and currents required, with beaches in this category considered dangerous							
<b>9 - 10</b>		<u>Extremely Hazardous</u> : Identifies beaches that are considered extremely dangerous due to strong rips and currents, and large breakers							
<b>Local Hazards Key</b>		<b>A</b> Headland	<b>D</b> Groyne/Stormwater	<b>G</b> River	<b>J</b> Erosion	<b>M</b> Structures			
		<b>B</b> Rocks in Surf	<b>E</b> Permanent Rip	<b>H</b> Tourist Attraction	<b>K</b> Steep Gradient	<b>N</b> High Winds			
		<b>C</b> Reefs	<b>F</b> Tidal Inlet	<b>I</b> Logs	<b>L</b> Sewage				



## Coastal Access Rating

Site Ref	Location / Site	Rating	Comments
1	Oriental Parade Beach	10	Inner city beach, dense population in close proximity, full facilities provided
2	Balaena Bay	10	Inner city beach, dense population in close proximity, boat launching facility
3	Hataitai	10	Inner city beach, dense population in close proximity, full facilities provided
4	Scorching Bay	10	Inner city beach, dense population in close proximity, full facilities provided
5	Worser Bay	10	Inner city beach, dense population in close proximity, full facilities provided
6	Seatoun Beach	10	Inner city beach, dense population in close proximity, some facilities provided
7	Breaker Bay	10	Dense population in close proximity, some facilities provided, good access
8	Lyllall Bay	10	Urban surf beach, dense population in close proximity, full facilities provided
9	Houghton Bay	10	Dense population in close proximity, some facilities provided, good access
10	Island Bay	10	Dense population in close proximity, some facilities provided, good access
11	Owhiro Bay	10	Dense population in close proximity, some facilities provided, good access

Access Rating Explained	Rating	Criteria
	2	No identifiable access via road or track, no facilities, unlikely access via water / foreshore
	4	Access via unmaintained track with no facilities or access via water (i.e. boat)
	6	Access via any form of track or walkway (either maintained or unmaintained) AND <u>any</u> provision of facilities or services including (but not limited to) public transport, shower, public toilet, payphone, kiosk, significant roadway, parking.
	8	Access via maintained tracks with clearly identified parking area AND/OR provision of basic facilities (i.e. public toilets, public shower/ washdown area) AND/OR within 10km of moderate sized town or city (population greater than 5,000)
	10	Clearly evident, marked or signposted and maintained access points AND/OR within 10km of major town or city (population greater than 25,000) AND / OR car parking for 50 or more vehicles/boat trailers. Public transport provided within 250m of a beach access point.



## Coastal Visitation Profile – Guide to Ratings

Peak Visitation Rating (PVR)	Criteria – On Beach	Criteria – In Water
1	Less than 25 people (total) on the beach during the peak period of the day.	Less than 10 people (total) in the water during the peak period of the day.
2	More than 25 people but less than 100 people (total) on the beach during the peak period of the day.	More than 10 people but less than 50 people (total) in the water during the peak period of the day.
3	More than 100 people but less than 500 people (total) on the beach during the peak period of the day.	More than 50 people but less than 100 people (total) in the water during the peak period of the day.
4	More than 500 people but less than 1000 people (total) on the beach during the peak period of the day.	More than 100 people but less than 250 people (total) in the water during the peak period of the day.
5	More than 1000 people (total) on the beach during the peak period of the day.	More than 250 people (total) in the water during the peak period of the day.
Peak Visitation Frequency (PVF)	Criteria (use same criteria for 'on beach' and 'in water')	Information Source / Comments
1	Peak Visitation Rating occurs once in the month	Data gathering methods for beach usage analysis: <ul style="list-style-type: none"> <li>• SLSNZ peak headcount data collected by lifesaving services (patrolled beaches only)</li> <li>• Territorial Authorities in some area's may collect this data (tourism etc)</li> <li>• Interviews with local people in the area (such as a beach kiosk shop keeper, locals etc)</li> <li>• GIS Camera Technology – Remote counting</li> </ul>
2	Peak Visitation Rating occurs at least once a week (during the month)	
3	Peak Visitation Rating occurs every weekend (Saturday and Sunday) during the month.	
4	Peak Visitation Rating occurs at least 50% of weekdays (as well as on weekends) during the month.	
5	Peak Visitation Rating occurs everyday of the month	

Annual Usage Profile														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Mean
Rating – On Beach														
Rating – In Water														
PVF – On Beach														
PVF – In Water														
Total / 20 (/ by 2)														

# Coastal Visitation Profile

			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Overall									
<b>Site: 1</b>	Oriental Parade Beach	PVR (Beach / Water)	5	5	5	5	3	2	2	1	1	1	1	1	1	1	2	1	2	1	5	4		
		PVF (Beach / Water)	4	4	4	4	3	3	3	3	2	2	2	1	2	1	2	1	2	1	3	2	3	3
		<b>Total / 20 (/ by 2)</b>	<b>9</b>	<b>9</b>	<b>8</b>	<b>5.5</b>	<b>3.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>4</b>	<b>7.5</b>									
<b>Site: 2</b>	Balaena Bay	PVR (Beach / Water)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
		PVF (Beach / Water)	5	5	3	3	3	3	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	
		<b>Total / 20 (/ by 2)</b>	<b>6</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>4</b>									
<b>Site: 3</b>	Hataitai	PVR (Beach / Water)	1	2	1	2	1	2	1	1	1	1	1	1	1	1	2	1	2	1	2	1	2	
		PVF (Beach / Water)	5	5	3	4	3	4	2	3	1	1	1	1	1	1	3	1	4	1	4	3	5	
		<b>Total / 20 (/ by 2)</b>	<b>6.5</b>	<b>5</b>	<b>5</b>	<b>3.5</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>3.5</b>	<b>4</b>	<b>4</b>	<b>5.5</b>										
<b>Site: 4</b>	Scorching Bay	PVR (Beach / Water)	5	5	5	4	4	4	3	2	2	1	1	1	1	1	1	2	1	2	1	5	4	
		PVF (Beach / Water)	4	4	3	3	3	3	3	3	2	2	2	1	2	1	2	1	2	1	3	2	3	3
		<b>Total / 20 (/ by 2)</b>	<b>9</b>	<b>7.5</b>	<b>7</b>	<b>5.5</b>	<b>3.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>3</b>	<b>4</b>	<b>7.5</b>										
<b>Site: 5</b>	Worser Bay	PVR (Beach / Water)	4	4	3	3	3	3	2	2	2	1	1	1	1	1	1	1	1	2	1	3	3	
		PVF (Beach / Water)	4	4	3	3	3	3	3	3	2	1	2	1	2	1	2	1	2	1	3	2	3	3
		<b>Total / 20 (/ by 2)</b>	<b>6</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>3</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>4</b>	<b>6</b>										
<b>Site: 6</b>	Seatoun Beach	PVR (Beach / Water)	3	2	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2	2	3	2	
		PVF (Beach / Water)	4	4	3	3	3	3	3	3	2	1	2	1	2	1	2	1	2	1	3	2	3	3
		<b>Total / 20 (/ by 2)</b>	<b>6.5</b>	<b>5.5</b>	<b>5</b>	<b>5</b>	<b>3</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>4.5</b>	<b>5.5</b>										
<b>Site: 7</b>	Breaker Bay	PVR (Beach / Water)	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2		
		PVF (Beach / Water)	4	4	4	3	3	3	2	2	2	2	2	2	2	2	2	2	2	3	3	3	4	
		<b>Total / 20 (/ by 2)</b>	<b>6</b>	<b>5.5</b>	<b>5</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>5</b>	<b>5.5</b>										



## Coastal Visitation Profile

			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Overall									
Site: 8	Lyllall Bay	PVR (Beach / Water)	5	5	5	5	5	3	3	2	2	2	2	2	2	2	2	2	2	2	3	4		
		PVF (Beach / Water)	4	4	4	4	3	3	3	3	2	2	2	2	2	2	3	2	4	3	4	3	4	3
		<b>Total / 20 (/ by 2)</b>	<b>9</b>	<b>9</b>	<b>8</b>	<b>6</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4.5</b>	<b>5.5</b>	<b>5.5</b>	<b>7</b>									
Site: 9	Houghton Bay	PVR (Beach / Water)	3	2	3	2	1	2	1	2	1	1	1	1	1	1	1	1	1	1	2	2	2	
		PVF (Beach / Water)	3	3	3	3	3	3	3	3	1	2	1	2	1	2	1	2	1	2	1	3	3	3
		<b>Total / 20 (/ by 2)</b>	<b>5.5</b>	<b>5.5</b>	<b>4.5</b>	<b>4.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>3.5</b>	<b>5</b>									
Site: 10	Island Bay	PVR (Beach / Water)	2	1	2	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	
		PVF (Beach / Water)	3	3	3	3	3	3	3	3	2	1	2	1	2	1	2	1	2	1	2	1	3	3
		<b>Total / 20 (/ by 2)</b>	<b>4.5</b>	<b>4.5</b>	<b>4.5</b>	<b>4</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>4.5</b>									
Site: 11	Owhiro Bay	PVR (Beach / Water)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		PVF (Beach / Water)	3	3	3	3	3	3	3	3	2	1	2	1	2	1	2	1	2	1	2	1	3	3
		<b>Total / 20 (/ by 2)</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>4</b>										

### Visitation / Usage Notes/Observations:

- The area known as 'Red Rocks' has been flagged as an area with significant (both 'in water' and 'on beach' recreational usage). Access has been enhanced in this area recently and the area is a popular sport for rock fisherman, snorkelling and SCUBA diving as the Marine reserve ends ~500m West of the car park area.
- Breaker Bay, Houghton Bay and Island Bay (off the island) are popular surf spots and visitation/usage can vary significantly depending on the quality of the surf and weather conditions. All three of these sites are particularly hazardous due to the high wave energy environment, strong currents, and presence of sharp rocks in the surf break.
- There is an area of coastline between Breaker Bay and Lyall Bay which is largely rock foreshore, however, during the warmer months, this area can have a significant level of usage (snorkelling, SCUBA diving etc).
- There is a variation of the type of recreation undertaken between the South Coast area and the inner harbour area. Recreation on the South coast is driven by surf activity and food gathering. Recreation inside the Harbour is weighted more towards bathing, picnicking, sunbathing, sport and fitness.

# Conflicting Activities Profile

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Overall											
Site: 1	Oriental Parade Beach	Wet / Dry	3	3	3	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3.33		
		Total	6	6	6	4	2	2	2	2	2	2	2	4											
Site: 2	Balaena Bay	Wet / Dry	2	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2.33	
		Total	3	3	3	2	2	2	2	2	2	2	3												
Site: 3	Hataitai	Wet / Dry	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
		Total	2	2	2	2	2	2	2	2	2	2	2												
Site: 4	Scorching Bay	Wet / Dry	2	3	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2.5	
		Total	5	5	2	2	2	2	2	2	2	2	2												
Site: 5	Worser Bay	Wet / Dry	3	2	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	2.66	
		Total	5	4	3	2	2	2	2	2	2	3	3												
Site: 6	Seatoun Beach	Wet / Dry	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
		Total	2	2	2	2	2	2	2	2	2	2	2												
Site: 7	Breaker Bay	Wet / Dry	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	1	3	
		Total	3	3	3	3	3	3	3	3	3	3	3												
Site: 8	Lyll Bay	Wet / Dry	5	3	5	3	3	2	3	2	3	1	2	1	2	1	2	1	2	1	3	1	3	1	4.42
		Total	8	8	5	5	4	3	3	3	3	4	4												
Site: 9	Houghton Bay	Wet / Dry	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
		Total	2	2	2	2	2	2	2	2	2	2	2												

## Activity Conflict

1 No conflicts reported    2 Isolated conflicts    3 Regular    4 Persistent    5 Persistent and dangerous

## Conflicting Activity Rating Note

An analysis of conflicting activities at each site is useful in making decisions about the best strategies to mitigate identified risks. 'Persistent and Dangerous' conflicts may suggest local authorities may need to create activity zoning bylaws to manage these risks. In addition, if a lifeguard service is in operation, the length of patrol season may be influenced by greater amounts of conflicting activities.



## Coastal Visitation Profile

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Overall
Site: 8	Lyllall Bay													
	PVR (Beach / Water)	5	5	5	5	5	3	3	2	2	2	2	3	4
	PVF (Beach / Water)	4	4	4	4	3	3	3	2	2	2	2	4	3
	<b>Total / 20 (/ by 2)</b>	9	9	8	6	4	4	4	4	4.5	5.5	5.5	7	
Site: 9	Houghton Bay													
	PVR (Beach / Water)	3	2	3	2	1	2	1	2	1	1	1	2	2
	PVF (Beach / Water)	3	3	3	3	3	3	1	2	1	2	1	3	3
	<b>Total / 20 (/ by 2)</b>	5.5	5.5	4.5	4.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	5	
Site: 10	Island Bay													
	PVR (Beach / Water)	2	1	2	1	2	1	1	1	1	1	1	2	1
	PVF (Beach / Water)	3	3	3	3	3	3	2	1	2	1	2	3	3
	<b>Total / 20 (/ by 2)</b>	4.5	4.5	4.5	4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	4.5	
Site: 11	Owhiro Bay													
	PVR (Beach / Water)	1	1	1	1	1	1	1	1	1	1	1	1	1
	PVF (Beach / Water)	3	3	3	3	3	3	2	1	2	1	2	3	3
	<b>Total / 20 (/ by 2)</b>	4	4	4	4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	4	

### Visitation / Usage Notes/Observations:

- The area known as 'Red Rocks' has been flagged as an area with significant (both 'in water' and 'on beach' recreational usage). Access has been enhanced in this area recently and the area is a popular sport for rock fisherman, snorkelling and SCUBA diving as the Marine reserve ends ~500m West of the car park area.
- Breaker Bay, Houghton Bay and Island Bay (off the island) are popular surf spots and visitation/usage can vary significantly depending on the quality of the surf and weather conditions. All three of these sites are particularly hazardous due to the high wave energy environment, strong currents, and presence of sharp rocks in the surf break.
- There is an area of coastline between Breaker Bay and Lyall Bay which is largely rock foreshore, however, during the warmer months, this area can have a significant level of usage (snorkelling, SCUBA diving etc).
- There is a variation of the type of recreation undertaken between the South Coast area and the inner harbour area. Recreation on the South coast is driven by surf activity and food gathering. Recreation inside the Harbour is weighted more towards bathing, picnicking, sunbathing, sport and fitness.

# Conflicting Activities Profile

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Overall									
Site: 1	Oriental Parade Beach	Wet / Dry	3	3	3	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3.33
	<b>Total</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>4</b>										
Site: 2	Balaena Bay	Wet / Dry	2	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2.33
	<b>Total</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>3</b>											
Site: 3	Hataitai	Wet / Dry	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
	<b>Total</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>											
Site: 4	Scorching Bay	Wet / Dry	2	3	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2.5
	<b>Total</b>	<b>5</b>	<b>5</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>											
Site: 5	Worser Bay	Wet / Dry	3	2	3	1	2	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	2.66
	<b>Total</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>3</b>											
Site: 6	Seatoun Beach	Wet / Dry	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
	<b>Total</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>											
Site: 7	Breaker Bay	Wet / Dry	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	3
	<b>Total</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>											
Site: 8	Lyll Bay	Wet / Dry	5	3	5	3	3	2	3	2	3	1	2	1	2	1	2	1	3	1	3	1	4.42
	<b>Total</b>	<b>8</b>	<b>8</b>	<b>5</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>4</b>										
Site: 9	Houghton Bay	Wet / Dry	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
	<b>Total</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>											

**Activity Conflict**

**1** No conflicts reported    **2** Isolated conflicts    **3** Regular    **4** Persistent    **5** Persistent and dangerous

**Conflicting Activity Rating Note**

An analysis of conflicting activities at each site is useful in making decisions about the best strategies to mitigate identified risks. 'Persistent and Dangerous' conflicts may suggest local authorities may need to create activity zoning bylaws to manage these risks. In addition, if a lifeguard service is in operation, the length of patrol season may be influenced by greater amounts of conflicting activities.



# Conflicting Activities Profile

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Overall					
Site: 10	Island Bay	Wet / Dry	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	3
	<b>Total</b>		3	3	3	3	3	3	3	3	3	3	3	3	3				
Site: 11	Owhiro Bay	Wet / Dry	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
	<b>Total</b>		2	2	2	2	2	2	2	2	2	2	2	2	2				
<b>Activity Conflict</b>		1	No conflicts reported	2	Isolated conflicts	3	Regular	4	Persistent	5	Persistent and dangerous								

## Conflicting Activity Rating Note

An analysis of conflicting activities at each site is useful in making decisions about the best strategies to mitigate identified risks. 'Persistent and Dangerous' conflicts may suggest local authorities may need to create activity zoning bylaws to manage these risks. In addition, if a lifeguard service is in operation, the length of patrol season may be influenced by greater amounts of conflicting activities.

## Conflicting Activity Notes/Observations:

- In line with the types of activities people are undertaking in the varying environments, conflict on the South Coast tends to be between swimming vs kite surfing, swimming vs surfing, surfing vs kite surfing.
- Conflict in the inner harbour area tends to be between swimming vs sailing, swimming vs kayaking, kayaking vs sailing, powered craft vs swimming etc.
- There is an issue at Oriental Bay of intoxicated / drug affected persons engaging in recreation and creating conflict with other users.
- Oriental Bay and Scorching Bay have elevated levels of 'dry' conflict (i.e. animals, ball games, sun bathing etc) due to the higher saturation of beach users vs other sites that are not used by as many people.
- An ongoing, all year round conflict exists at Island Bay with surfers and SCUBA divers making the paddle across the island channel and unaware boat users operating powered craft in the channel.

## Area Incident Profile

Site Ref	Site Name	Incident Rating	Information / Data Source
1	Oriental Parade Beach	6	Surf Life Saving Data/ Local Interviews / Media Reports
2	Balaena Bay	2	Local Interviews
3	Hataitai	2	Local Interviews
4	Scorching Bay	4	Surf Life Saving Data / Local Interviews
5	Worser Bay	4	Surf Life Saving Data / Local Interviews
6	Seatoun Beach	2	Local Interviews
7	Breaker Bay	8	Local Interviews / Media Reports
8	Lyll Bay	8	Surf Life Saving Data / Local Interviews / Media Reports
9	Houghton Bay	4	Local Interviews
10	Island Bay	4	Local Interviews
11	Owhiro Bay	2	Local Interviews
Information / Data Sources		Rating	Criteria
✓	Police	2	No evidence of incidents or less than 1 minor incident per year.
✓	Fire Service	4	Some evidence of minor incidents occurring at the location in last 12 months.
✓	Ambulance Data	6	At least 1 major incident (hospitalisation) in the last 12 months AND/OR at least 1 minor incident each month during the last 12 months.
✓	Hospital Data	8	Between 1 and 5 major incidents (hospitalisations) in last 12 months OR between 12-24 reports of minor incidents during the last 12 months.
✓	Surf Life Saving Service Data	10	More than 5 major incidents in the last 12 months AND/OR at least one fatality during the last 12 months AND/OR regular reports (>24 per year) of minor incidents.
✓	Local Interviews		
✓	Media reports		
✓	ACC Incident Data		



# Coastal Public Safety Assessment Summary

This table summarises how each site has been assessed for its current level of public safety (modal) and an indication of control measure implementation priorities for the area, in conjunction with Land Management Authorities, Surf Life Saving and other stakeholders, to enhance public safety over coming years.

Beach Name	Site Ref	Modal Hazard Rating	Usage Rating	Conflicting Activity Rating	Incident Rating	Access Rating	Total Score /50	Priority
Oriental Parade Beach	1	3	4.92	3.33	6	10	27.25	Medium
Balaena Bay	2	2	3	2.33	2	10	19.33	Medium
Hataitai	3	3	3.75	2	2	10	20.75	Medium
Scorching Bay	4	2	4.75	2.5	4	10	23.25	Medium
Worser Bay	5	2	4.125	2.66	4	10	22.79	Medium
Seatoun Beach	6	3	3.95	2	2	10	20.95	Medium
Breaker Bay	7	6	4	3	8	10	31	High
Lyll Bay	8	4	5.88	4.42	8	10	32.3	High
Houghton Bay	9	6	3.63	2	4	10	25.63	Medium
Island Bay	10	3	3.30	3	4	10	23.3	Medium
Owhiro Bay	11	4	3.13	2	2	10	21.13	Medium

*Total Score Guide: 1-15 – low priority, 16-30 – medium priority, 31- 40 - high, urgent priority, 41+ critical, immediate control measure implementation*










## Coastal Public Safety Blueprint – Wellington City

### Zone 1 – Inner Harbour (Map 1 of 3)



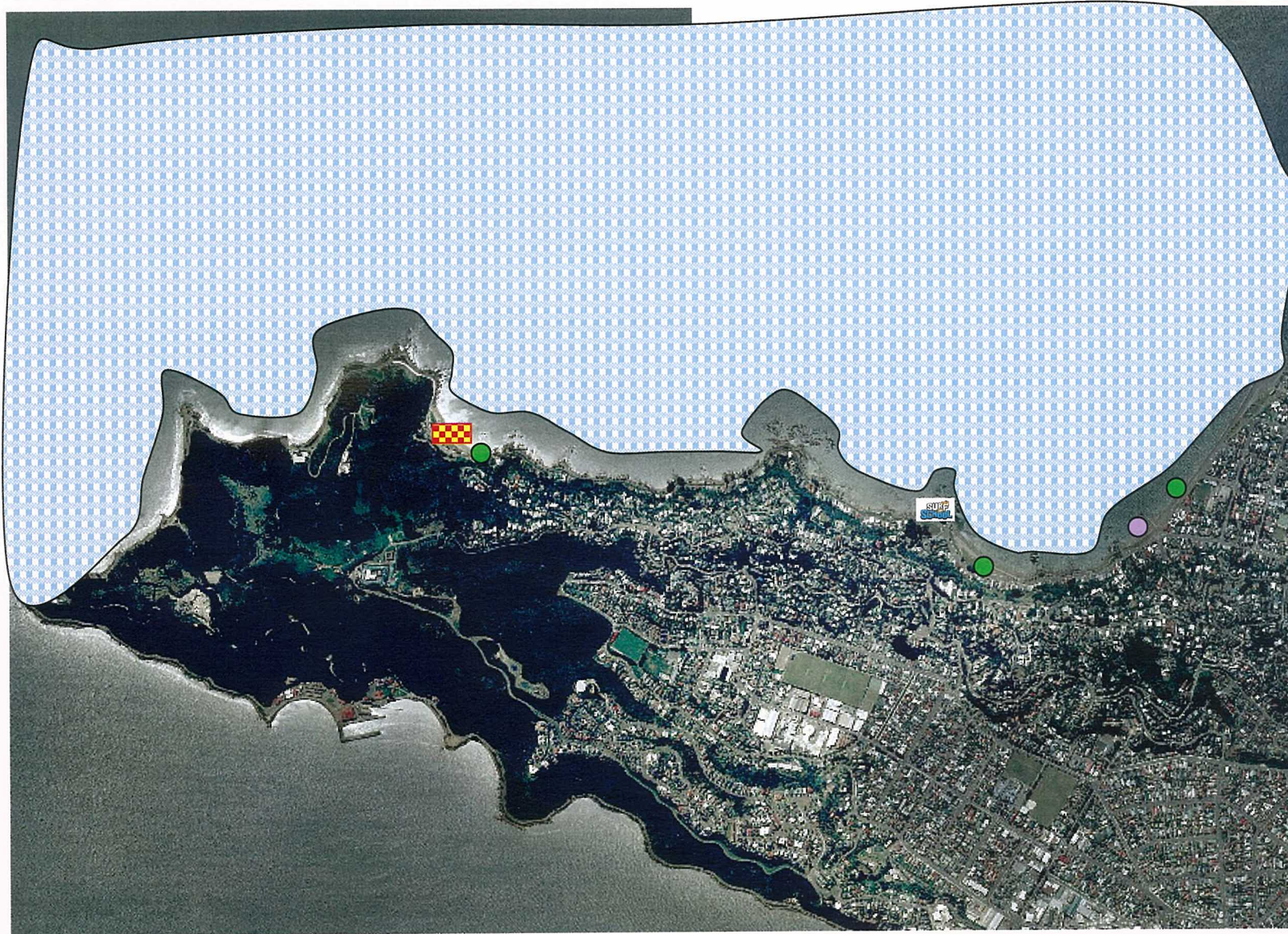
#### Intervention Key

-  NZS:8690 compliant signage implementation
-  Emergency Response Beacon Installation
-  Public Rescue Equipment (Life Buoy)
-  Patrolled Beach (Nov-April). Includes: observation area, equipment storage, basic amenities.
-  Support Service Coverage (RWC) Nov – April during beach patrol hours. Also includes area of coastline covered by 24/7/365 first response team.
-  Targeted water safety education and awareness programmes delivered at beaches, in classrooms, at swimming pools.
-  Fundamental to all operations is access to command and control through an appropriate communications network. This is currently not in place in Wellington City.










## Coastal Public Safety Blueprint – Wellington City

### Zone 2 – Harbour (Map 2 of 3)



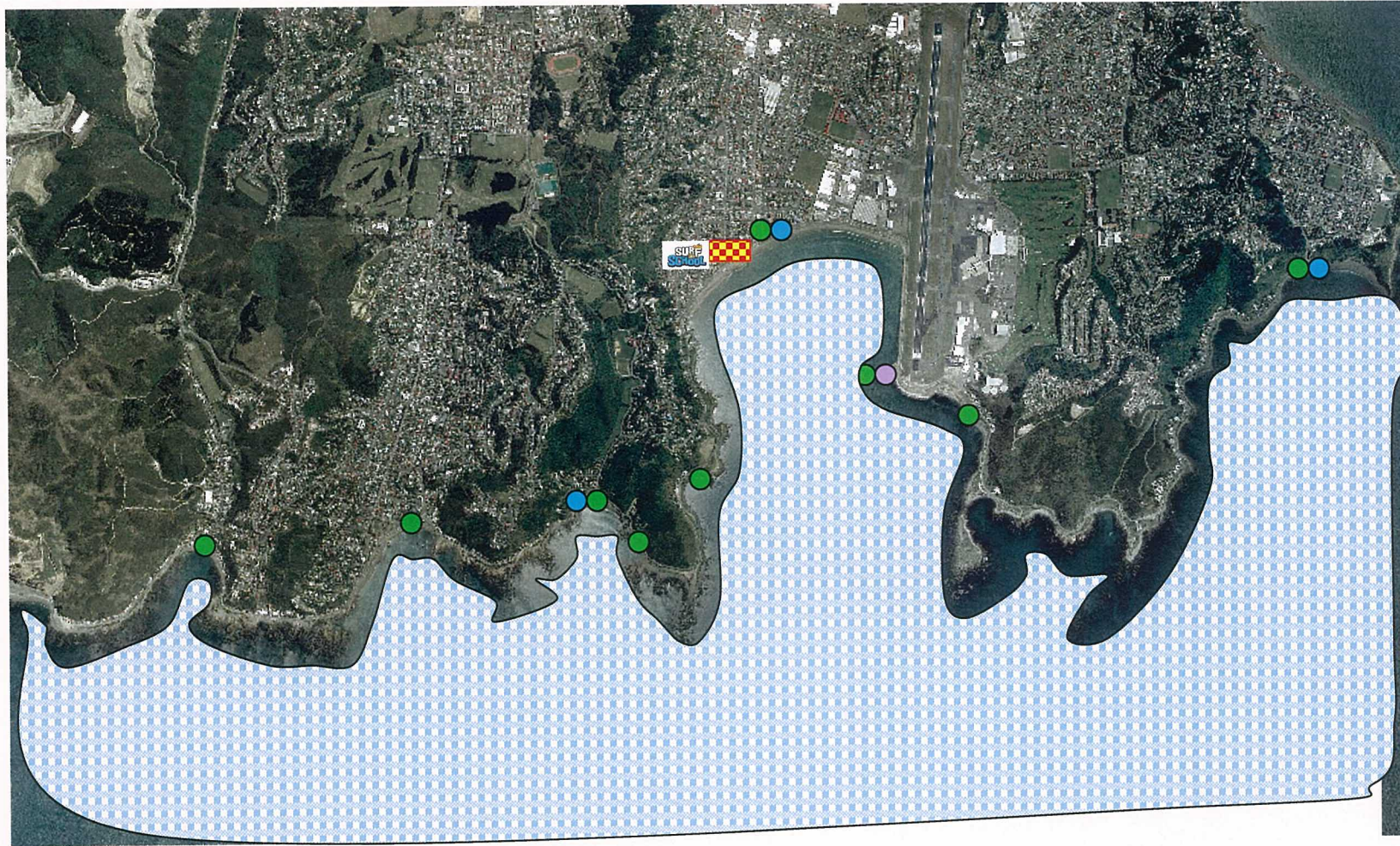
#### Intervention Key

-  NZS:8690 compliant signage implementation
-  Emergency Response Beacon Installation
-  Public Rescue Equipment (Life Buoy)
-  Patrolled Beach (Nov-April). Includes: observation area, equipment storage, basic amenities.
-  Support Service Coverage (RWC) Nov – April during beach patrol hours. Also includes area of coastline covered by 24/7/365 first response team.
-  Targeted water safety education and awareness programmes delivered at beaches, in classrooms, at swimming pools.
-  Fundamental to all operations is access to command and control through an appropriate communications network. This is currently not in place in Wellington City.










## Coastal Public Safety Blueprint – Wellington City

### Zone 3– South Coast (Map 3 of 3)



#### Intervention Key

-  NZS:8690 compliant signage implementation
-  Emergency Response Beacon Installation
-  Public Rescue Equipment (Life Buoy)
-  Patrolled Beach (Nov-April). Includes: observation area, equipment storage, basic amenities.
-  Support Service Coverage (RWC) Nov – April during beach patrol hours. Also includes area of coastline covered by 24/7/365 first response team.
-  Targeted water safety education and awareness programmes delivered at beaches, in classrooms, at swimming pools.
-  Fundamental to all operations is access to command and control through an appropriate communications network. This is currently not in place in Wellington City.



## SECTION FOUR: GLOSSARY, REFERENCES, ACKNOWLEDGEMENTS & APPENDICES

<b>Consequence</b>	Outcome or impact of an event
<b>Control Measure</b>	An existing process, policy, device, practice or other action that acts to minimise negative risk or enhance positive opportunities
<b>Event</b>	Occurrence of a particular set of circumstances
<b>Frequency</b>	A measure of the number of occurrences per unit of time
<b>Hazards</b>	A source of potential harm
<b>Likelihood</b>	Used as a general description of probability or frequency
<b>Monitor</b>	To check, supervise, observe critically or measure the progress of an activity, action or system on a regular basis in order to identify change from the performance level required or expected
<b>Probability</b>	A measure of the chance of occurrence expressed as a number
<b>Residual risk</b>	Risk remaining after implementation of risk treatments
<b>Risk</b>	The chance of something happening that will have an impact on objectives
<b>Risk analysis</b>	Systematic process to understand the nature of and to the level of risk
<b>Risk assessment</b>	The overall process of risk identification, risk analysis and risk evaluation
<b>Risk evaluation</b>	Process of comparing the level of risk against criteria
<b>Risk identification</b>	The process of determining what, where, when, why and how something should happen
<b>Risk management</b>	The culture, processes and structures that are directed towards realising potential opportunities whilst managing adverse effects
<b>Risk management process</b>	The systematic application of management policies, procedures and practices to the tasks of communicating, establishing context, analysing, treating, monitoring and reviewing risk
<b>Risk treatment</b>	Process of selection and implementation of measures to modify risk
<b>Stakeholders</b>	Those people and organisations who may affect, be affected, or perceive themselves to be affected by a decision, activity or risk

Source: Risk Management, AS/NZ 4360/2004

## Acknowledgments / Reference Documents

Surf Life Saving New Zealand would like to acknowledge the following organisations for their intellectual and technical contribution in the development of this document:

- Royal National Lifeboat Institute (RNLI), United Kingdom
- Surf Life Saving Australia (SLSA), Australia
- MetOcean Solutions Ltd, New Zealand
- National Institute of Water and Atmosphere (NIWA), New Zealand
- Environment Advisory Committee of the ACC *Drowning Prevention Strategy 2005-2015*, New Zealand

### Reference Documents

- Risk Management AS/NZ Standard 4360:2004
- Water Safety Signage NZ Standard 8690:2003
- New Zealand Public Rescue Equipment Guidelines 1:2008
- NZ Government Drowning Prevention Strategy and Implementation Plan
- SLSNZ Coastal Public Safety: Risk Audit Tool
- Resource Management Act 1991
- Australian Beach Safety And Management Programme (ABSAMP), Surf Life Saving Australia



## Residual Risk Factors

Countermeasure	Control measures	Applications	Residual risk factors
Education and information	Pre-arrival education	<ul style="list-style-type: none"> <li>▪ Electronic and digital media</li> <li>▪ Leaflets/brochures</li> <li>▪ Awareness programmes</li> </ul>	<ul style="list-style-type: none"> <li>▪ Did not receive or understand awareness information</li> <li>▪ Does not interpret hazard as being a risk to themselves</li> <li>▪ Accepts risk</li> </ul>
	Arrival information	<ul style="list-style-type: none"> <li>▪ Information signage</li> </ul>	<ul style="list-style-type: none"> <li>▪ Did not see signage or did not understand signage</li> <li>▪ Does not interpret hazard as being a risk to themselves</li> <li>▪ Accepts risk</li> </ul>
	Safe beach access	<ul style="list-style-type: none"> <li>▪ Formal access ways</li> </ul>	<ul style="list-style-type: none"> <li>▪ Access ways not maintained</li> </ul>
	On-site education	<ul style="list-style-type: none"> <li>▪ Public address systems</li> <li>▪ Face-to-face</li> </ul>	<ul style="list-style-type: none"> <li>▪ Did not receive or understand awareness information</li> <li>▪ Does not interpret hazard as being a risk to themselves</li> <li>▪ Accepts risk</li> </ul>

Countermeasure	Control measures	Applications	Residual risk factors
Denial of access and/or provision of warnings	Barriers	<ul style="list-style-type: none"> <li>▪ Access barriers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Avoids or breaches barriers</li> <li>▪ Barriers creating a hazard</li> </ul>
	Signage	<ul style="list-style-type: none"> <li>▪ Information signage</li> <li>▪ Warning signage</li> <li>▪ Prohibition signage</li> </ul>	<ul style="list-style-type: none"> <li>▪ Did not see signage or did not understand signage</li> <li>▪ Does not interpret hazard as being a risk to themselves</li> <li>▪ Accepts risk</li> </ul>
	Byelaw development	<ul style="list-style-type: none"> <li>▪ Formal regulatory arrangements</li> <li>▪ Recognition of lifeguard services and other service</li> </ul>	<ul style="list-style-type: none"> <li>▪ Inability to 'police' regulations</li> </ul>

Countermeasure	Control measures	Applications	Residual risk factors
Provision of supervision	Trained observers	<ul style="list-style-type: none"> <li>Trained activity supervisors</li> </ul>	<ul style="list-style-type: none"> <li>Outside of staff hours of duty or season</li> <li>Not within area of coverage</li> <li>Observers fail to identify person in difficulty</li> <li>Observers failure to respond appropriately</li> </ul>
	First aid facilities	<ul style="list-style-type: none"> <li>Portable first aid kits</li> <li>Permanent/fixed facilities</li> </ul>	<ul style="list-style-type: none"> <li>Outside of staff hours of duty or season</li> <li>Not within the area of coverage</li> <li>Staff failure to identify person in difficulty</li> <li>Staff failure respond appropriately</li> </ul>
	Lifeguard services	<ul style="list-style-type: none"> <li>Intermittent (roving)</li> <li>Surveillance</li> <li>Full service (between the flags or open beach)</li> <li>After-hours call out</li> </ul>	<ul style="list-style-type: none"> <li>Outside of lifeguard hours of duty or season</li> <li>Not within the lifeguarded area</li> <li>Lifeguards' failure to identify person in difficulty</li> <li>Lifeguards' failure to reach person(s) in difficulty</li> </ul>
	Activity management	<ul style="list-style-type: none"> <li>Club/group registration</li> <li>Self regulation programme</li> <li>Permit systems</li> </ul>	<ul style="list-style-type: none"> <li>Individuals not aware of self regulation programmes, permit systems or clubs</li> <li>Rogue operators/individuals</li> </ul>
	Activity restrictions	<ul style="list-style-type: none"> <li>Zoning</li> <li>Beach/water closure</li> </ul>	<ul style="list-style-type: none"> <li>Individuals not aware of zoning systems</li> <li>Rogue operators/individuals</li> </ul>

Countermeasure	Control measures	Applications	Residual risk factors
Acquisition of survival skills	Community training	<ul style="list-style-type: none"> <li>Survival skills</li> <li>Self-rescue skills</li> <li>Rescue skills</li> </ul>	<ul style="list-style-type: none"> <li>Did not receive training</li> <li>Inappropriate or incomplete training</li> <li>Over confidence of individual, therefore assuming a higher level of risk</li> </ul>
	Emergency communications	<ul style="list-style-type: none"> <li>Public telephone</li> <li>Outpost alarms</li> <li>Dedicated emergency telephone</li> <li>Radio</li> </ul>	<ul style="list-style-type: none"> <li>Equipment not able to be seen or accessed</li> <li>Equipment not available or fit for purpose (vandalism or theft)</li> <li>Equipment not suitable for purpose</li> </ul>
	PRE	<ul style="list-style-type: none"> <li>Lifebuys</li> <li>Throw lines</li> <li>Other extraction equipment and fixtures</li> </ul>	<ul style="list-style-type: none"> <li>Equipment not able to be seen or reached</li> <li>Equipment not in place or not in a usable condition (stolen or vandalised)</li> <li>Rescuer not able to use equipment</li> <li>Rescuer enters water and places themselves at risk</li> <li>Equipment not suitable for task</li> </ul>



# Guide to Beach Classification and (modal) Beach Hazard Rating

## Beach Types

Beach type refers to the prevailing nature of a beach, including the waves and currents, the extent of the nearshore zone, the width and shape of the surf zone, including its bars and troughs, and the dry or subaerial beach (Short, 2006).

New Zealand has an extensive open coast with numerous beach systems. These beach systems can be classified into a range of beach types including six wave-dominated types, three tide-modified types, four tide-dominated types and two types which involve rock flats or fringing coral reefs.

## Wave Dominated Beach Types

Beaches exposed to persistent ocean swell and waves and low tides (range <2m). Consist of 3 types; Reflective, Intermediate (longshore bar and trough, rhythmic bar and beach, transverse bar and rip, low tide terrace) and Dissipative.

## Tide Modified Beach Types

Occur in areas of high tide range and usually lower waves. Occur when the tide range is between 3 and 15 times the wave height and the wave height is <0.3m. Consist of 3 types Reflective + low tide terrace, Reflective + bars and rips, Ultra dissipative.

## Tide Dominated Beach Types

Occur in areas of high tide range and usually lower waves. Occur when the tide range is between 10 and 15 times the wave height and the wave height is very low. Consists of 5 types Reflective + sand ridges, Reflective + sand flats, Reflective + tidal sand flats, Reflective + tidal mud flats, Reflective + rock flats.

### BEACH HAZARD RATING GUIDE

Impact of changing breaker wave height on hazard rating for each beach type

#### Wave Dominated Beaches

WAVE HEIGHT (m) \ BEACH TYPE	<0.5	0.5	1.0	1.5	2.0	2.5	3.0	>3.0
Dissipative	4	5	6	7	8	9	10	10
Long Shore Bar Trough	4	5	6	7	7	8	9	10
Rhythmic Bar Beach	4	5	6	6	7	8	9	10
Transverse Bar Rip	4	4	5	6	7	8	9	10
Low tide terrace	3	3	4	5	6	7	8	10
Reflective	2	3	4	5	6	7	8	10

#### Tide Dominated Beaches

(at high tide – at low tide add 1)

Ultra-dissipative	1	2	4	6	8	10	10
Relective + Bar & Rips	1	2	3	5	7	9	10
Relective + LTT	1	1	2	4	6	8	10

#### Tide Dominated Beaches





(at high tide – at low tide add 1)

Beach + Sand Ridges	1	1	2	Waves unlikely to exceed 0.5–1 m			
Beach + Sand flats	1	1	<i>Note: If adjacent to tidal channel, beware of deep water and strong tidal currents</i>				
Tidal sand flats	1						

#### BEACH HAZARD RATING

Least hazardous: 1–3  
 Moderately hazardous: 4–6  
 Highly hazardous: 7–8  
 Extremely hazardous: 9–10

#### KEY TO HAZARDS

	Water depth and/or tidal currents
	Shore break
	Rips and surf zone current
	Rips, currents and large breakers

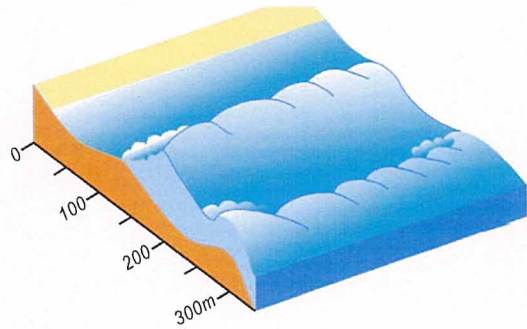
NOTE: All hazard level ratings are based on a swimmer being in the surf zone and will increase with increasing wave height or with the presence of features such as an inlet, headland or reef induced rips and currents. Rips also become stronger with a falling tide.

**Bold** gradings indicate the average wave height usually required to produce the beach type and its average hazard rating.

The following descriptions, diagrams and images demonstrate the different beach types.

### 1. Dissipative Beach

Dissipative beaches are characterised as being high energy beaches with a wide surf zone including two to three shore normal bars and troughs. They have a low, wide and firm beach face consisting of fine sand. On a dissipative beach wave breaking begins as spilling breakers on the outer bar, these waves then reform again and again to break on the inner bars thus the wave energy is dissipated over the wide surf zone.

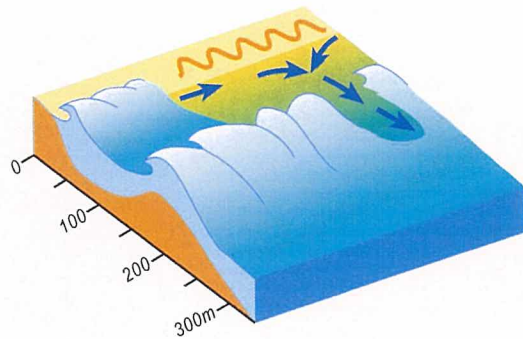


#### Typical Dissipative Beaches:

- Oreti Beach, McCrackens Lookout, Orepuke Beach, Blue Cliff Beach, Te Waewae Bay

### 2. Longshore Bar and Trough

Longshore bar and trough beaches consist of a shore parallel bar separated from the beach by a deep trough. Breakers are generally 1.5-2.0 m high. Moderate rip currents. Straight beach composed of medium sand with moderate to steep beach face and cusps.



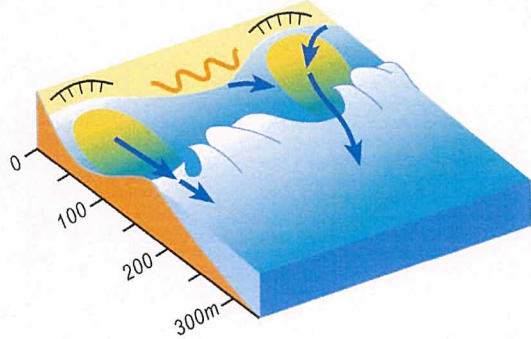
#### Typical Longshore Bar and Trough Beaches:

- Mokau, Marakopa, Tomahawk Bay, St Kilda Beach - Football field, Brighton, Punakaiki Beach



### 3. Rhythmic Bar and Beach

Rhythmic bar and beach is the highest energy beach type. This beach type consists of a rhythmic (undulating) bar, trough and beach. This beach type has distinct rip troughs separated by detached bars. Breakers are generally 1.5-2.0 m high. Typically these beaches have cusps (in lee of bars) and are fine-medium sand.

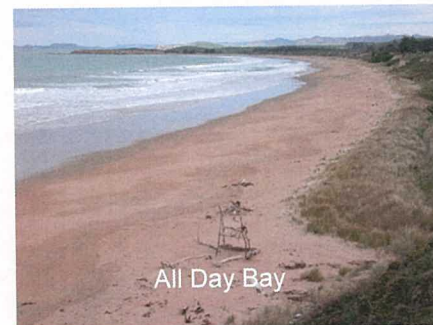
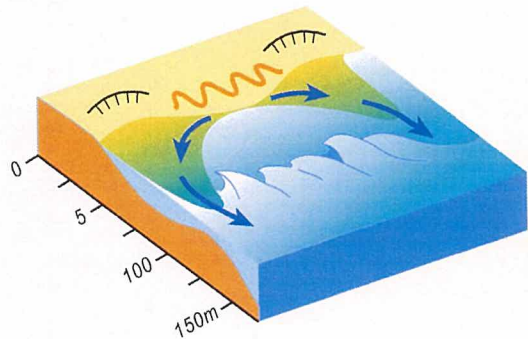


#### Typical Rhythmic Bar and Beach:

- Summer Hill Beach, Taupirikaka Point at Ship Creek, Bruce Bay

### 4. Transverse Bar and Rip

Bars transverse (perpendicular) to and attached to the beach separated by distinct rip troughs at 150-300 m spacing. Breakers 1.0-1.5 m high. Surf zone 50 -150 m wide with cellular circulation pattern. Undulating beach, with cusps, composed of fine to medium sand.

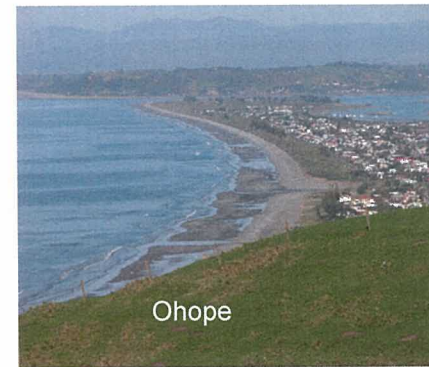
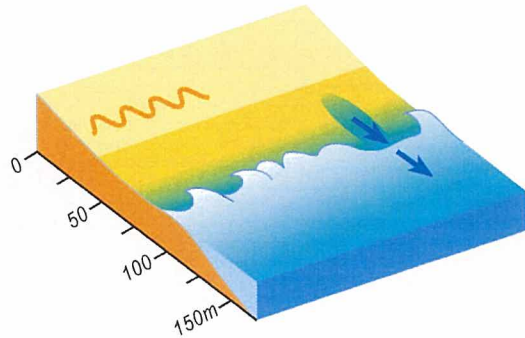


#### Typical Transverse Bar and Rip Beaches:

- Whangaparaoa Bay, Gisborne - Midway SLSC, Tolaga Bay, Opunake, Kiritehere Beach, Curio Bay, Rapahoe, Morpeth Street

### 5. Low Tide Terrace

Moderately steep beach face joined to an attached bar or terrace exposed at low tide. The bar extends alongshore, is flat and featureless, or cut every several 10's of metres by small rips. Breakers 0.5-1.0 m high. Beach composed of fine to medium sand. Commonly occur in areas sheltered from direct wave attack.

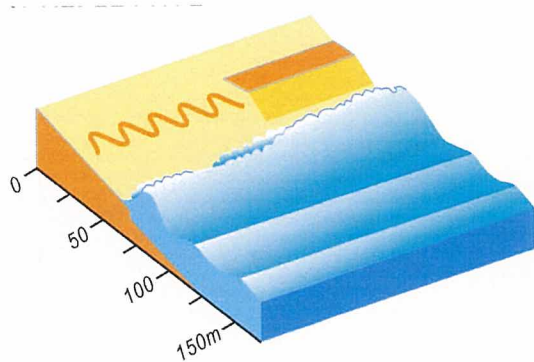


#### Typical Low Tide Terrace Beaches:

- Ohope, Hicks Bay, Te Awanga, Bell Block, Okains Bay, Moeraki Beach

### 6. Reflective

Lowest wave energy of the wave-dominated beaches (breakers 0-1 m high). Steep narrow beach face with cusps on upper beach and narrow and swash zone. Short beaches composed of soft coarse sediments. Occur in locations sheltered by rocks, reefs and headlands.



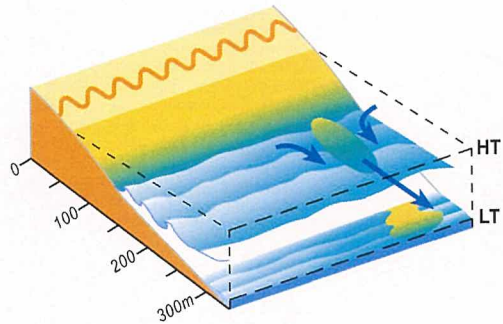
#### Typical Reflective Beaches:

- Tuparoa Beach, Mahia, Westshore, Kaiteriteri, Okiwi Bay, St Andrews Beach



### 7. Reflective + Low Tide Terrace

Tide-modified beach type. Lowest energy of the tide-modified beaches with the coarsest sand. Steep cusped high-tide beach composed of medium to coarse sand, which changes at an abrupt break in slope into a low-gradient wide (av. 120 m but can range 20-1000 m) low tide terrace composed of finer sand. Breakers 0.5-1 m high. At high tide waves surge at base of steep beach and there is no surf zone. At low tide there is a flat sand bar exposed, waves of > 0.5 m height plunge on outer end of bar, and waves >1 m height may cut rip channels across the terrace.

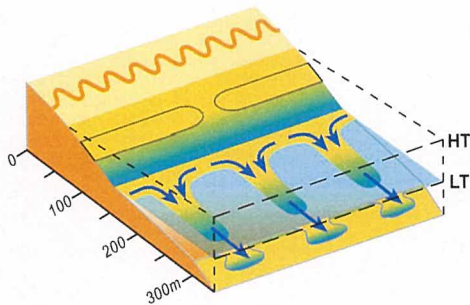


#### Reflective + Low Tide Terrace Beaches:

- Langs Beach, Tapapakanga Regional Park, Papa Aroha, Onekaha Inlet, Cable Bay, Little Akaroa

### 8. Reflective + Bars & Rips

Tide-modified system with relatively straight, moderately steep, narrow, usually coarser and cusped reflective high-tide beach, fronted by a lower gradient, relatively featureless intertidal zone and wave dominated low-tide surf zone usually characterised by bar and rip morphology. Breakers 0.5 to 1.5 m high (height increases with onshore winds). At high tide waves break across a narrow continuous surf zone. At low tide a wider surf zone has rips (spacing 100-150 m).

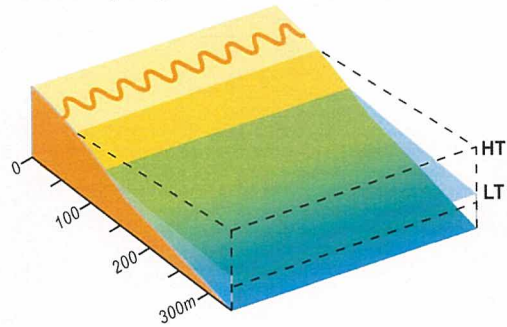


#### Typical Reflective + Bars & Rips Beaches:

- None identified in NZ thus far

### 9. Ultra Dissipative

Tide-modified beach type. Relatively straight, steeper, cusped high tide beach, with a low gradient concave, featureless, wide (averages 400-500 m) intertidal zone. Occur on the higher energy, tide modified coasts with waves averaging 0.5 m, and favoured by higher tide ranges and fine sand. Spilling breakers of 0.5-1.5 m height (height increases with onshore wind velocity). At high tide there is a wide zone of spilling breakers. At low tide there is a very wide zone of spilling breakers.

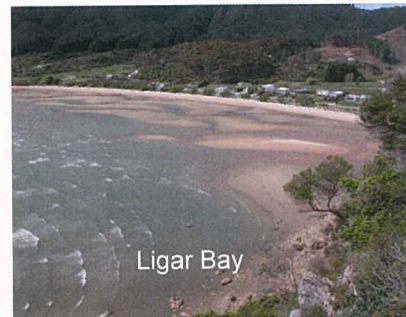
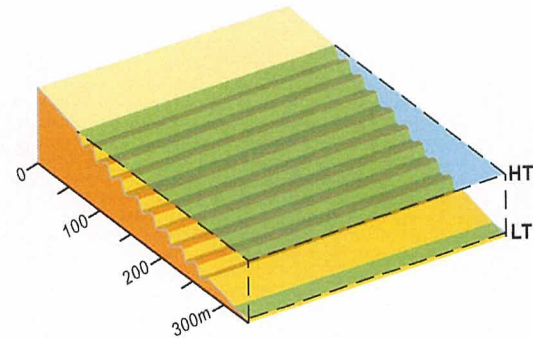


#### Typical Ultra Dissipative Beaches:

- Orewa (Marie Place), Rabbit Island, Tahunanui Beach

### 10. Reflective Beach + Sand Ridges

Tide-dominated beach type. Steep (3-10°), narrow high-tide beach composed of coarse sand, fronted by an abrupt break in slope and a wide (several hundred metres) low gradient, usually finer sand intertidal zone containing shore parallel, numerous low amplitude sand ridges and runnels. At high tide there are no waves unless strong onshore winds, and relatively deep water off high tide beach.



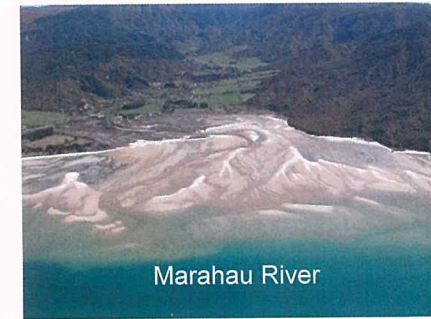
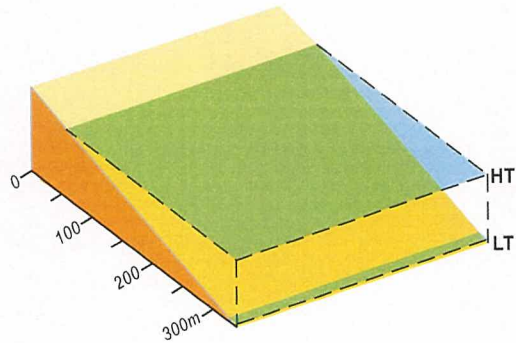
#### Typical Beach + Sand Ridges Beaches:

- Wenderholm (Centre), Onahau Road, Fenwick Road, Ligar Bay, Takapou Beach (East), Marahau Spit Beach



### 11. Reflective Beach + Sand Flats

Tide-dominated beach type. Small steep (3-10°), low-gradient, very low-energy high-tide beach composed of coarse sand, fronted by flat featureless sand flats up to several hundred meters wide composed of finer sand. No waves unless strong onshore winds.

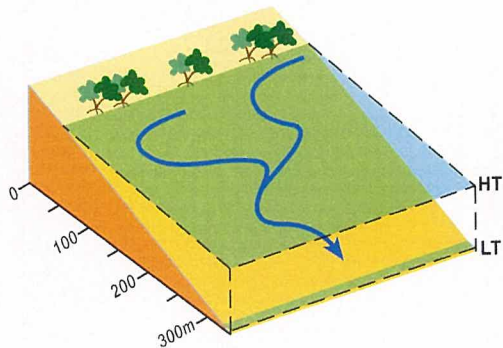


#### Typical Reflective + Sand Flats Beaches:

- Shelly Bay, Omana Beach, Kawakawa, Magazine Bay, Long Bay, Oamaru, Tapu Bay

### 12. Reflective Beach + Tidal Mud Flats

Tide-dominated system with narrow reflective high-tide beach composed of coarse sediments, fronted by wide (100's to several 1000's of metres), low gradient (<1°) mud flats with tidal draining channels. Mangroves or other vegetation may grow in the higher intertidal zone. Usually calm, only low wind chop during strong onshore winds. Occur where there is a source of mud nearby and where waves are insufficient to remove muds.

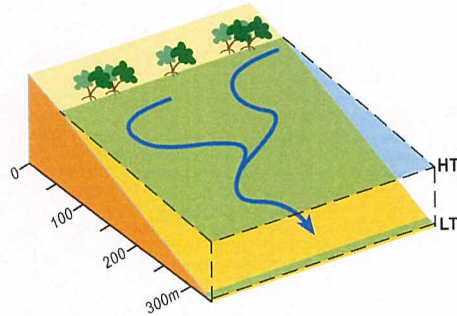


#### Typical Reflective + Tidal Mud Flats:

- Miranda at Bird Sanctuary, Koputauaki, Motueka Spit

### 13. Reflective Beach + Tidal Sand Flats

Tide-dominated beach type. Narrow reflective high-tide beach composed of coarse sediments, fronted by wide (hundreds of metres) low gradient (<math><1^\circ</math>) sand flats, that become muddy on lower intertidal with tidal draining channels. Mangroves or other vegetation may grow in the higher intertidal zone. Entire tidal flat is covered at spring high tide. Usually calm, only low wind chop during strong onshore winds.



#### Typical Reflective + Tidal Sand Flats:

- Tatapouri, Kina Beach, Waipapa Point North Lighthouse

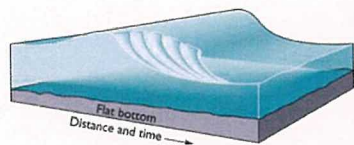
### 14. Reflective + Rock Flats

Tide-dominated system with steep reflective high tide beach fronted by rock extending seaward as an intertidal rock platform and/or rock flat. Bedrock control in the form of reefs and headlands means the beaches are short and waves average only 0.5 m height.

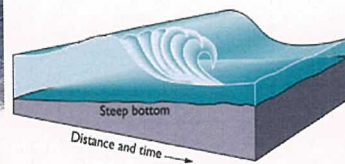
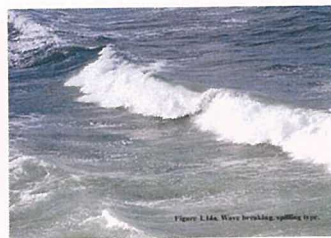
#### Describing the Type of Breaker

Breaker Type is observed for the outer most breakers which are defined as plunging, spilling, or surging.

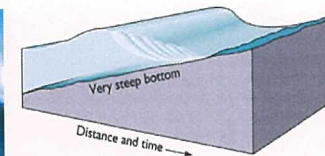
- Spilling breaker - Crest cascades down front of wave
- Plunging breaker - Crest curls forward & plunges down,
- Surging breaker - Base of wave surges forward



Spilling Waves



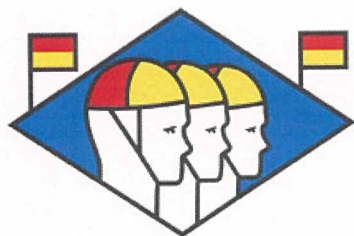
Plunging/Dumping Waves



Surging Waves







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